Dragages -China Harbour-VSL JV

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Monthly EM&A Report

September 2013
(Version 2.0)

Certified By 

Dr. H.F. Chan
Environmental Team Leader
(Date: 15 October 2013)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

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EXECUTIVE SUMMARY

Introduction

1. This is the 8th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the project "Contract No. HY/2011/09 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill" (hereinafter called the "Contract"). This report documents the findings of EM&A Works conducted in September 2013.

Environmental Monitoring and Audit Progress

2. A summary of the monitoring activities in this reporting month is listed in **Table I** below:

Table I Summary Table for Monitoring Activities in the Reporting Month

Parameter(s)	Date(s)
1-hr TSP Monitoring	4th, 10th, 16th, 21st and 27th September 2013
24-hr TSP Monitoring	4th, 10th, 16th, 21st and 27th September 2013
Noise Monitoring	5th, 11th , 17th, 23rd and 30th September 2013
Water Quality Monitoring	2nd, 4th, 6th, 9th, 11th, 14th, 16th, 18th, 21st, 23rd, 25th , 28th and 30th September 2013
Dolphin Monitoring (Line-transect Vessel Surveys)	11th and 19th September 2013
(1)Additional Land-based Dolphin Behaviour and Movement Monitoring	28th and 30th September 2013
Environmental Site Inspection	3rd, 10th, 17th and 27th September 2013
Archaeological Site Inspection	10th September 2013

Remark: (1) Additional Land-based Dolphin Behaviour and Movement Monitoring Results will be presented in a separate report as the results analysis has not finished.

Breaches of Action and Limit Levels

3. Summary of the environmental exceedances of the reporting month is tabulated in **Table II**.

Table II Summary Table for Events Recorded in the Reporting Month

Environmental Monitoring	Parameter	No. of Exceedance		No. of Exceedance related to the Construction Activities of this Contract	
		Action Level	Limit Level	Action Level	Limit Level
Air Quality	1-hr TSP	0	0	0	0
	24-hr TSP	0	0	0	0
Noise	$L_{eq(30min)}$	0	0	0	0
Water Quality	Dissolved Oxygen (DO) (Surface & Middle)	0	0	0	0
	Dissolved Oxygen (DO) (Bottom)	0	0	0	0
	Turbidity	0	0	0	0
	Suspended Solids (SS)	3	1	0	0

1-hour TSP Monitoring

4. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

5. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

6. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

7. All water quality monitoring was conducted as scheduled in the reporting month. There is three Action Level and one Limit Level exceedances for suspended solids were recorded.

8. According to the investigation, no pollution discharge was observed from the marine works. The exceedances at the monitoring station which is situated at the upstream of the site and the exceeded results were similar or within the ranges baseline monitoring results. Therefore, the exceedances are considered not due to the Contract.

Complaint Log

9. No environmental complaint was received in the reporting month.

Notification of Summons and Successful Prosecutions

10. No notification of summons and successful prosecution was received in the reporting month.

Reporting Changes

11. This report has been developed in compliance with the reporting requirements for the subsequent monthly EM&A Report as required by the EM&A Manual for Hong Kong Link Road (EM&A Manual).

Future Key Issues

12. Major site activities for the coming reporting month will include:

WA4

- Fabrication of rebar cages
- Fabrication of temporary piling platforms

WA7

- Fabrication of rebar cages
- Loading and Unloading

Marine Viaduct (P0 to P84)

- Piling works for the temporary jetty
- Installation of temporary casings
- Pile excavation by Reverse Circulation Drilling (RCD) method
- Pile excavation by Kelly method
- Sonic Test
- Installation of permanent casing
- Installation of temporary piles for piling platform
- Predrilling works

Land Viaduct (P85 to P114)

- Land piling and concreting works
- Formation of piling platform along seawall
- Site clearance
- Formation of site access along the top of the existing seawall
- Marine landing access establishment work

- Drainage and water main diversion
- Predrilling works
- Concrete surrounding works for slewed telecommunication cables
- Trench excavation for slewing of AAHK's COM cable
- Tree felling/transplant work
- Pile head excavation / trimming
- Pile cap and column construction

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Dragages -China Harbour-VSL JV (hereinafter called "the Contractor") as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Contract No. HY/2011/09 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill" (hereinafter called the "Contract") in accordance with EP Conditions 2.1.

Purpose of the report

1.2 This is the 8th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme in September 2013.

Structure of the report

1.3 The structure of the report is as follows:

Section 1: **Introduction -** purpose and structure of the report.

Section 2: **Contract Information** - summarises background and scope of the Contract, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting month.

Section 3: **Air Quality Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: **Noise Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: **Water Quality Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 6: **Dolphin-Related Monitoring -** summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations and monitoring results.

Section 7: **Environmental Site Inspection -** summarises the audit findings of the weekly site inspections undertaken within the reporting month.

Section 8: **Environmental Non-conformance -** summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting month.

Section 9: **Future Key Issues -** summarises the impact forecast and monitoring schedule for the next three months.

Section 10: **Conclusions and Recommendation**

2 CONTRACT INFORMATION

Background

2.1 The proposed Hong Kong - Zhuhai - Macao Bridge Hong Kong Link Road (HKLR) is 12km long connecting the Hong Kong-Zhuhai-Macao Bridge (HZMB) at the HKSAR Boundary with the Hong Kong Boundary Crossing Facilities (HKBCF) situated at the north eastern waters of the Hong Kong International Airport, opening a new and direct connection route between Hong Kong, Macao and the Western Pearl River Delta.

2.2 The HKLR comprises a 9.4km long viaduct section from the HKSAR boundary to Scenic Hill on the Airport Island; a 1km tunnel section to the reclamation formed along the east coast of the Airport Island and a 1.6km long at-grade road section on the reclamation connecting to the HKBCF. The tunnel section of HKLR will pass under Scenic Hill, Airport Road and Airport Railway to minimize the environmental and visual impacts to Tung Chung residents.

2.3 An application (No ESB-110/2003) for an Environmental Impact Assessment (EIA) Study Brief under Section 5(1) of the Environmental Impact Assessment Ordinance (EIAO) was submitted by Highways Department (the Project Proponent) on 8 October 2003 with a Project Profile (No. No. PP-201/2003) for the Hong Kong - Zhuhai - Macao Bridge Hong Kong Section and North Lantau Highway Connection. The Hong Kong - Zhuhai - Macao Bridge Hong Kong Section and North Lantau Highway Connection has subsequently been renamed as HKLR. EPD issued an EIA Study Brief (No: ESB-110/2003) in November 2003 to the Project Proponent to carry out an EIA study.

2.4 An EIA Study (Reg. No. AEIAR-144/2009) has been undertaken to provide information on nature and extent of environmental impacts arising from the construction and operation of HKLR. The Environmental Permit was issued on 4 November 2009 (Permit No. EP-352/2009). Pursuant to Section 13 of the EIAO, the Director of Environmental Protection amends the Environmental Permit (No. EP-352/2009) based on the Application No. VEP-339/2011 and the environmental Permit (Permit No. EP-352/2009/A) was issued on 9 November 2011 for HKLR to the Highways Department as the Permit Holder. Subsequently, the Director of Environmental Protection amends the Environmental Permits (No. EP-352/2009/A and EP-352/2009/B) based on the Application No. VEP-409/2013 and VEP-411/2013 respectively. The environmental Permit (Permit No. EP-352/2009/C) was then issued on 5 September 2013.

2.5 **Figure 1a-d** shows the layout of the Contract and the scope of the Contract works comprises the following major items:

- a dual 3-lane carriageway in the form of viaduct from the HKSAR boundary (connecting with the HZMB Main Bridge) to the Scenic Hill (connecting with the tunnel under separate Contract No. HY/2011/03), of approximately 9.4km in length with a hard shoulder for each bound of carriageway and a utilities trough on the outer edge of each bound of viaducts;
- a grade-separated turnaround facility located near San Shek Wan, composed of sliproads in the form of viaduct with single-lane carriageway bifurcated from the HKLR mainline with an elevated junction above the mainline;
- provision of ancillary facilities including, but not limited to, meteorological enhancement measures including the provisioning of anemometers and

modification of the wind profiler station at hillside of Sha Lo Wan, provisioning of a compensatory marine radar, and provisioning of security systems; and

- associated civil, structural, geotechnical, marine, environmental protection, landscaping, drainage and highways electrical and mechanical (E&M) works, street lightings, traffic aids and sign gantries, marine navigational aids, ship impact protection system, water mains and fire hydrants, lightning protection system, structural health monitoring and maintenance management system (SHM&MMS), supervisory control and data acquisition (SCADA) system, as well as operation and maintenance provisions of viaducts, provisioning of facilities for installation of traffic control and surveillance system (TCSS), provisioning of facilities for installation of telecommunication cables/equipments and reprovisioning works of affected existing facilities/utilities.

Contract Organisation

2.6 Different parties with different levels of involvement in the Contract organization include:

- Supervising Officer's Representative (SOR) – Ove Arup & Partners Hong Kong Limited (ARUP)
- Contractor –Dragages -China Harbour-VSL JV (DCVJV)
- Environmental Team (ET) – Cinotech Consultants Ltd. (Cinotech)

2.7 The proposed project organization and lines of communication with respect to the on-site environmental management structure are shown in **Figure 2**. The key personnel contact names and numbers are summarized in **Table 2.1.**

Table 2.1 Key Contacts of the Contract

Party	Position	Position	Phone No.	Fax No.
SOR (ARUP)	CRE	Mr. Michael Chan	3767 5803	3767 5922
		Mr. Colin Meadows	3767 5801	
ENPO/IEC (Environ)	Environmental Project Office Leader	Mr. Y. H Hui	3465 2888	3465 2899
	Independent Environmental Checker	Mr. Antony Wong	3465 2888	3465 2899
Contractor (DCVJV)	Deputy Project Director	Mr. W.K Poon	3121 6638	3121 6688
	Environmental Officer	Mr. CHU Chung Sing	3121 6672	
	24-hour Hotline	--	6898 6161	--
ET (Cinotech)	Environmental Team Leader	Dr. H.F Chan	2151 2088	3107 1388

2.8 ENVIRON Hong Kong Ltd. (Environ) is employed by the Highways Department as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.

Construction Programme

2.9 A copy of Contractor's construction programme is provided in **Appendix A**.

Summary of Construction Works Undertaken During Reporting Month

2.10 The major site activities undertaken in the reporting month included:

Land Viaduct (P84 to Eastern Abutment) and Preparation Works

(a) Land piling works are in progress with total 14 and3 no of pile concreted in Portion C and Portion A respectively. 6 piles were concreted in this reporting period.

(b) Formation of piling platform along seawall is in progress. 10 nos. of platform (P98 to P107) were completed in this reporting period. Three other platforms (P94 to P97) were being filled up to level of +3mPD.

(c) Two kicker pour for column of land viaduct (P109L &P109R) were poured.

(d) Tree felling started in Portion A & C and continue in progress.

(e) Telecommunication cable slewing and concrete surround (near P113) was completed. Piling work in the vicinity started.

(f) Tracing of AA COM cables alignment and terminals was completed with report submitted. Cable terminals were also checked in the survey pending for AAHK's confirmation to finalize method statement.

(g) Marine landing access establishment work near P82 was completed.

(h) Diversion to existing 1350mm drainage pipe and the 600mm water main for construction of piling works of P106 to P108 is ready but still pending for Works Permit from AA.

Marine Viaduct (P0 - P84)

(i) Piling works for the temporary jetty at P69 - P70 continued and remains in progress (80% of piling completed);

(j) Beams and deck installation for jetty at P69-P70 isin progress (50% of beams & 10% of deck installed);

(k) Installation of temporary casings at P53L, P54L & P73L is in progress;

(l) Piling Jacket were installed at P46, P54L & P53L;

(m) Permanent casing were installed at P46 & P53L;

(n) Pile excavation by RCD method at P53L was commenced and down to rockhead at P46, P72R & P73R;

(o) 11 nos. piles excavated using RCD method were concreted in this reporting period;

(p) Finish dismantle jacket at P71, P54R & P53R;

(q) Sonic Test has been carried out at P53R;

(r) 22 visas out of 50 requested by Sambo were granted this month. A 4th working front will start in October2013;

(s) Installation of piling platform at P44, P16 and P40were completed;

(t) Installation of permanent casing at P44 and P19 were completed and ongoing at P40 & P16;

(u) Installation of temporary piles for piling platform at P40 and P41 was completed and on-going at P18 and P42;

(v) Piling platforms at P48 and P49 were removed and transferred to P16 and P40;

(w) Pile excavation by Kelly method at P0, P19, P20, P43 and P45 with 16 piles concreted in this reporting period;

(x) Progress at P0 was affected by results of interfacecoring;

(y) Sonic test for the completed piles at P0, P48 had been carried out;

(z) Interface coring was done at P0, P48 and P49.

Status of Environmental Licences, Notification and Permits

2.11 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Contract is presented in **Table 2.2**.

Table 2.2 Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-352/2009/C	05/09/2013	N/A	Valid
Consruction Noise Permit (CNP)			
Pier 0: GW-RS0353-13	07/04/2013(07:00)	06/10/2013(23:00)	Valid
Pier 0: GW-RS0361-13	07/04/2013(23:00)	06/10/2013(23:00)	Cancelled
P19-P20: GW-RS0370-13	17/04/2013(23:00)	16/10/2013(23:00)	Valid
WA3B: GW-RS0499-13	15/05/2013 (00:00)	14/11/2013 (24:00)	Valid
P106-P114: GW-RS0553-13	23/05/2013(19:00)	22/11/2013 (23:00)	Cancelled
P17-P19: GW-RS0596-13	10/06/2013(19:00)	09/12/2013(23:00)	Cancelled
P71-P73: GW-RS0636-13	17/06/2013(19:00)	16/12/2013(23:00)	Valid
P69-P70: GW-RS0664-13	24/06/2013(19:00)	23/12/2013(23:00)	Cancelled
WA7: GW-RW0484-13	15/07/2013(23:00)	14/01/2014(07:00)	Valid
WA4: GW-RW0496-13	19/07/2013(19:00)	18/01/2014(23:00)	Valid
P50-P64: GW-RS0792-13	24/07/2013(23:00)	24/01/2014(07:00)	Superseded by CNP No. GW-RS0970-13
P65-P66:GW-RS0865-13	02/08/2013(23:00)	01/02/2014(07:00)	Valid
P76-P80:GW-RS0868-13	02/08/2013(23:00)	01/02/2014(07:00)	Valid
P69-P70:GW-RS0869-13	02/08/2013(23:00)	01/02/2014(07:00)	Valid
WA7:GW-RW0524-13	27/08/2013(19:00)	27/02/2014(23:00)	Valid

Permit / License No.	Valid Period		Status
	From	To	
WA4B:GW-RW0550-13	12/08/2013(23:00)	11/02/2014(07:00)	Valid
Waters in works area Portion A: GW-RS0895-13	13/08/2013(07:00)	21/10/2013(23:00)	Valid
P16-P18 and P21-P25: GW-RS0975-13	28/08/2013(19:00)	26/02/2014(23:00)	Valid
P69-P70: GW-RS0976-13	16/09/2013(19:00)	15/03/2014(23:00)	Valid
P76-P80: GW-RS0981-13	30/08/2013(19:00)	28/02/2014(23:00)	Valid
P0-P21: GW-RS0940-13	23/08/2013(23:00)	22/02/2014(07:00)	Valid
P83: GW-RS0956-13	24/08/2013(19:00)	23/02/2014(24:00)	Valid
P46-P64: GW-RS0970-13	27/08/2013(23:00)	26/02/2014(07:00)	Valid
P65-P66: GW-RS0967-13	27/08/2013(19:00)	26/02/2014(23:00)	Valid
P38-P54: GW-RS0986-13	02/09/2013(19:00)	01/03/2014(23:00)	Valid
P85-P87 and P103-P113: GW-RS0994-13	02/09/2013(19:00)	01/03/2014(23:00)	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
345773	04/06/2012	N/A	Receipt acknowledged by EPD
Billing Account for Construction Waste Disposal			
A/C# 7015341 (Construction Site)	13/06/2012	N/A	Valid
A/C# 7016948 (Vessel Disposal)	01/09/2013	30/11/2013	Valid
Registration of Chemical Waste Producer			
WPN 5213-951-D2499-01	18/07/2012	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WA6A(DCVJV site office): WT00014053-2012	12/09/2012	30/09/2017	Valid
WA6B (SOR site office): WT00014447-2012	30/10/2012	31/10/2017	Valid
WA3: WT00015118-2013	30/01/2013	31/01/2018	Valid
Portion C: WT00015356-2013	22/02/2013	28/02/2018	Valid
Portion A: WT00016076-2013	21/05/2013	31/05/2018	Valid
WA4B: WT00014750-2012	12/08/2013	31/08/2018	Valid
Marine Dumping Permit			
Dumping of Phase 1, 2a, 2b, 2c and 2d (Type 1-Open Sea Disposal) marine sediment EP/MD/14-043	05/08/2013	04/02/2014	Valid
Dumping of Phase Phase 1, 2a, 2b, 2c and 2d (Type 1D and Type 2) marine sediment EP/MD/14-042	07/08/2013	06/09/2013	Valid
Dumping of Phase Phase 1, 2a, 2b, 2c and 2d (Type 1D and Type 2) marine sediment EP/MD/14-054	07/09/2013	06/10/2013	Valid

3 AIR QUALITY MONITORING

Monitoring Requirements

3.1 In accordance with the EM&A Manual, impact 1-hour TSP and 24-hour TSP monitoring were conducted to monitor the air quality for the Contract. **Appendix B** shows the established Action/Limit Levels for the air quality monitoring works.

3.2 Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was conducted for at least once every 6 days at 2 air quality monitoring stations.

Monitoring Location

3.3 Impact air quality monitoring was conducted at the 2 monitoring stations under the Contract, as shown in **Figure 3**. **Table 3.1** describes the locations of the air quality monitoring stations.

Table 3.1 Location for Air Quality Monitoring Locations

Monitoring Stations	Location
AMS1	Sha Lo Wan
AMS4	San Tau

Monitoring Equipment

3.4 **Table 3.2** summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix C**.

Table 3.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
HVS Sampler	TISCH Model: TE-5170	2
Calibrator	TISCH Model: TE-5025A	2
Wind Anemometer	DAVIS Model: Vantage PRO2 6152CUK	1

Monitoring Parameters, Frequency and Duration

3.5 **Table 3.3** summarizes the monitoring parameters and frequencies of impact dust monitoring during the course of the Contract activities. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 3.3 Impact Dust Monitoring Parameters, Frequency and Duration

Parameters	Frequency
1-hr TSP	Three times / 6 days
24-hr TSP	Once / 6 days

Monitoring Methodology and QA/QC Procedure

1-hour and 24-hour TSP Air Quality Monitoring

Instrumentation

3.6 High Volume Samplers (HVS) completed with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

HVS Installation

3.7 The following guidelines were adopted during the installation of HVS:

- Sufficient support was provided to secure the sampler against gusty wind.
- No two samplers were placed less than 2 meters apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.
- Airflow around the sampler was unrestricted.
- The samplers were more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.
- Permission must be obtained to set up the samples and to obtain access to the monitoring stations; and
- A secured supply of electricity is needed to operate the samplers.

Filters Preparation

3.8 Filter paper of size 8" X 10" was used. A HOKLAS accredited laboratory, ETS – Testconsult Limited (ETS), was responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for Cinotech's monitoring team.

3.9 All filters, which were prepared by ETS, were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.

3.10 ETS has comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

3.11 Operating/analytical procedures for the air quality monitoring were highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter was removed and sent to the ETS for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

3.12 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- All HVS were calibrated (five point calibration) using Calibration Kit prior to the commencement of the baseline monitoring and thereafter at bi-monthly intervals.

Results and Observations

3.13 The monitoring results for 1-hour TSP and 24-hour TSP are summarized in **Table 3.4 and 3.5** respectively. Detailed monitoring results and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices E and F** respectively.

Table 3.4 Summary Table of 1-hour TSP Monitoring Results during the Reporting Month

Monitoring Station	Concentration (µg/m3)		Action Level, µg/m^3	Limit Level, µg/m^3
	Average	Range		
AMS1	78	14 - 147	381	500
AMS4	104	18 - 215	352	

Table 3.5 Summary Table of 24-hour TSP Monitoring Results during the Reporting Month

Monitoring Station	Concentration (µg/m3)		Action Level, µg/m^3	Limit Level, µg/m^3
	Average	Range		
AMS1	58	18 - 96	170	260
AMS4	59	25 - 92	171	

3.14 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

3.15 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

3.16 According to our field observations, the major dust source identified at the designated air quality monitoring stations in the reporting month are as follows:

Table 3.6 Observation at Dust Monitoring Stations

Monitoring Station	Major Dust Source
AMS1	Exhaust from marine traffic
AMS4	N/A

3.17 The wind speed and wind direction were recorded by the installed Wind Anemometer set at AMS4. The location is shown in **Figure 3**.

3.18 The wind data for the reporting month is summarized in **Appendix J**.

Event and Action Plan

3.19 Should non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix K** shall be carried out.

4 NOISE MONITORING

Monitoring Requirements

4.1 In accordance with EM&A Manual, two noise monitoring stations, namely NMS1 and NMS4 were selected for impact monitoring for the Contract. Impact noise monitoring was conducted for at least once per week during the construction phase of the Contract. **Appendix B** shows the established Action and Limit Levels for the noise monitoring works.

Monitoring Location

4.2 Impact noise monitoring was conducted at the 2 monitoring stations under the Contract, as shown in **Figure 3**. **Table 4.1** describes the locations of the air quality monitoring stations.

Table 4.1 Location for Air Quality Monitoring Locations

Monitoring Stations	Location
NMS1	Sha Lo Wan
NMS4	San Tau

Monitoring Equipment

4.3 **Table 4.2** summarizes the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix C**.

Table 4.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	SVAN 957	2
Calibrator	SV 30A	2

Monitoring Parameters, Frequency and Duration

4.4 **Table 4.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 4.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
NMS1 NMS4	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A) (as six consecutive $L_{eq, 5min}$ readings)	0700-1900 hrs on normal weekdays	Once per week

Monitoring Methodology and QA/QC Procedures

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - time measurement : L_{eq}(30 min.) dB(A) (as six consecutive $L_{eq, 5min}$ readings) during non-restricted hours (i.e. 0700-1900 hrs on normal weekdays)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- During the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

Maintenance and Calibration

4.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.

4.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.

4.7 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

4.8 The noise monitoring results are summarized in **Table 4.4**. Detailed monitoring results and graphical presentations of noise monitoring are shown in **Appendices G**.

Table 4.4 Summary Table of Noise Monitoring Results during the Reporting Month

Monitoring Station	Noise Level, $L_{eq\ (30min)}$ dB(A)		Limit Level
	Average	Range	
NMS1	68	57 – 72	75 dB(A)
NMS4	60	53 – 63	

Remark: +3dB(A) Façade correction included

4.9 All noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

4.10 According to our field observations, the major noise source identified at the designated noise monitoring stations in the reporting month are as follows:

Table 4.5 Observation at Noise Monitoring Stations

Monitoring Station	Major Noise Source
NMS1	Air traffic & marine traffic noise
NMS4	Air traffic & marine traffic noise

Event and Action Plan

4.11 Should non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix K** shall be carried out.

5 WATER QUALITY MONITORING

Monitoring Requirements

5.1 According to EM&A Manual, impact water quality monitoring shall be carried out three days per week during the construction period. The interval between two sets of monitoring will not be less than 36 hours.

5.2 Replicate in-situ measurements and samples collected from each independent sampling event shall be collected to ensure a robust statistically interpretable database.

5.3 Impact water quality monitoring was conducted two times per monitoring day during mid ebb (within ± 1.75 hours of the predicted time) and mid flood tides (within ± 1.75 hours of the predicted time) at three depths (i.e. 1m below surface, mid-depth and 1m above seabed, except where the water depth less than 6m, mid-depth station may be omitted. Should the water depth be less than 3m, only the mid-depth station was monitored) Dissolved oxygen, Suspended solids (SS), turbidity, pH, salinity and temperature were monitored in accordance with the requirements set out in the EM&A Manual.

5.4 The proposal for changing Action and Limit Levels for water quality monitoring was submitted to EPD on 15 March 2013. No objection was received from EPD according to the letter (ref. (10) in Ax(3) to EP2/G/A/129pt.4) dated 25 March 2013. Therefore, the updated Action and Limit Levels for water quality monitoring was used for comparison starting from 25 March 2013.

5.5 **Appendix B** shows the established Action/Limit Levels for the water quality monitoring works.

Monitoring Locations

5.6 Impact water quality monitoring was conducted at 14 monitoring stations under the Contract which are summarized in **Table 5.1**. The monitoring station is also shown in **Figure 4**.

Table 5.1 Location for Marine Water Quality Monitoring Locations

Monitoring Stations	Coordinates	
	Easting	Northing
IS1	803474	815060
IS2	804851	815715
IS3	806502	815743
IS4	807008	816986
CS1	801784	812711
CS2	805849	818780
SR1	803126	812379
SR2	807856	816953
SR3	810525	816456
SR6	805837	821818
ST1	802677	816006
ST2	804055	818840

Monitoring Stations	Coordinates	
	Easting	Northing
ST3	800667	810126
SRA	809872	817152

Monitoring Equipment

Instrumentation

5.7 A multi-parameter meters (Model YSI 6820-C-M) were used to measure DO, turbidity, salinity, pH and temperature.

Dissolved Oxygen (DO) and Temperature Measuring Equipment

5.8 The instrument for measuring dissolved oxygen and temperature was portable and weatherproof complete with cable, sensor, comprehensive operation manuals and use DC power source. It was capable of measuring:

- a dissolved oxygen level in the range of 0-20 mg/L and 0-200% saturation; and
- a temperature of 0-45 degree Celsius.

5.9 It has a membrane electrode with automatic temperature compensation complete with a cable.

5.10 Sufficient stocks of spare electrodes and cables were available for replacement where necessary.

5.11 Salinity compensation was built-in in the DO equipment.

Turbidity

5.12 Turbidity was measured in situ by the nephelometric method. The instrument was portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. The equipment was capable of measuring turbidity between 0-1000 NTU. The probe cable was not less than 25m in length. The meter was calibrated in order to establish the relationship between NTU units and the levels of suspended solids. The turbidity measurement was carried out on split water sample collected from the same depths of suspended solids samples.

Sampler

5.13 A water sampler, consisting of a transparent PVC or glass cylinder of a capacity of not less than two litres which can be effectively sealed with cups at both ends was used. The water sampler has a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler was at the selected water depth.

Water Depth Detector

5.14 A portable, battery-operated echo sounder was used for the determination of water depth

at each designated monitoring station.

pH

5.15 The instrument was consisting of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It was readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 were used for calibration of the instrument before and after use.

Salinity

5.16 A portable salinometer capable of recording salinity within the range of 0-40 ppt was used for salinity measurements.

Monitoring Position Equipment

5.17 A hand held Differential Global Positioning System (DGPS) was used during water quality monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

Sample Container and Storage

5.18 Following collection, water samples for laboratory analysis were stored in high density polythene bottles (250ml/1L) with no preservatives added, packed in ice (cooled to 4°C without being frozen) and kept in dark during both on-site temporary storage and shipment to the testing laboratory. The samples were delivered to the laboratory as soon as possible and the laboratory determination works were started within 24 hours after collection of the water samples. Sufficient volume of samples was collected to achieve the detection limit.

Calibration of In Situ Instruments

5.19 All in situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter was carried out before measurement at each monitoring event.

5.20 For the on site calibration of field equipment (Multi-parameter Water Quality System), the BS 1427:2009, "Guide to on-site test methods for the analysis of waters" was observed.

5.21 Sufficient stocks of spare parts were maintained for replacements when necessary. Backup monitoring equipment was also being made available so that monitoring can proceed uninterrupted even when some equipment was under maintenance, calibration, etc.

5.22 The equipment used for impact water quality monitoring is shown in **Table 5.2** and copies of the calibration certificates are shown in **Appendix C**. All the monitoring

equipment complied with the requirements set out in the EM&A Manual.

Table 5.2 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty
Sonar Water Depth Detector	Garmin Fishfinder 140	2
Monitoring Position Equipment	KODEN DGPS (KGP913MKIID, GA-08 & BA-03)	2
Multi-parameter Water Quality System	YSI 6820-C-M / YSI 6920-M	2
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	2

Monitoring Parameters, Frequency

5.23 **Table 5.3** summarizes the monitoring parameters, monitoring period and frequencies of the water quality monitoring. The water quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 5.3 Water Quality Monitoring Parameters and Frequency

Monitoring Stations	Parameters, unit	Depth	Frequency
IS1, IS2, IS3 IS4, CS1, CS2, SR1, SR2, SR3, SR6, ST1, ST2, ST3, SRA	• Temperature(°C) • pH(pH unit) • turbidity (NTU) • water depth (m) • salinity (ppt) • dissolved oxygen (DO) (mg/L and % of saturation) • suspended solids (SS) (mg/L)	• 3 water depths: 1m below sea surface, mid-depth and 1m above sea bed. • If the water depth is less than 3m, mid-depth sampling only. • If water depth less than 6m, mid-depth may be omitted.	• Impact monitoring: 3 days per week, at mid-flood and mid-ebb tides during the construction period of the Contract

5.24 Monitoring location/position, time, water depth, sampling depth, pH, salinity, DO saturation, water temperature, tidal stages, weather conditions and any special phenomena or work underway nearby were recorded.

Monitoring Methodology

Instrumentation

5.25 A multi-parameter meters (Model YSI 6820-C-M) were used to measure DO, turbidity, salinity, pH and temperature.

Operating/Analytical Procedures

5.26 The monitoring stations were accessed by the guide of a hand-held Differential Global Positioning System (DGPS) during water quality monitoring in accordance with the EM&A Manual. The depth of the monitoring location was measured using depth meter in order to determine the sampling depths. Afterwards, the probes of the in-situ

measurement equipment were lowered to the predetermined depths (1 m below water surface, mid-depth and 1 m above seabed) and the measurements were carried out accordingly.

5.27 At each measurement, two consecutive measurements of DO concentration, DO saturation, salinity, turbidity, pH and temperature were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.

5.28 Water sampler was lowered into the water to the required depths of sampling. Upon reaching the pre-determined depth, a messenger to activate the sampler was then released to travel down the wire. The water sample was sealed within the sampler before retrieving. At each station, water samples at three depths (1 m below water surface, mid-depth and 1 m above seabed) were collected accordingly. Water samples were stored in a cool box and kept at less than 4°C but without frozen and sent to the laboratory as soon as possible. In addition, field information as described in Section 5.23 was also recorded.

Laboratory Analytical Methods

5.29 The testing of all parameters was conducted by CMA Testing and Certification Laboratories (HOKLAS Registration No.004) and comprehensive quality assurance and control procedures in place in order to ensure quality and consistency in results. The testing method, reporting limit and detection limit are provided in **Table 5.4**.

Table 5.4 Methods for Laboratory Analysis for Water Samples

Determinant	Instrumentation	Analytical Method	Detection Limit
Suspended Solid (SS)	Weighing	APHA 21e 2540D	0.5 mg/L

QA/QC Requirements

Decontamination Procedures

5.30 Water sampling equipment used during the course of the monitoring programme was decontaminated by manual washing and rinsed clean seawater/distilled water after each sampling event. All disposal equipment was discarded after sampling.

Sampling Management and Supervision

5.31 All sampling bottles were labelled with the sample I.D (including the indication of sampling station and tidal stage e.g. IS1_me_a), laboratory number and sampling date. Water samples were dispatched to the testing laboratory for analysis as soon as possible after the sampling. All samples were stored in a cool box and kept at less than 4°C but without frozen. All water samples were handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.

5.32 The laboratory determination works were started within 24 hours after collection of the water samples.

Quality Control Measures for Sample Testing

5.33 The samples testing were performed by CMA Testing and Certification Laboratories.

5.34 The following quality control programme was performed by the CMA Testing and Certification Laboratories for every batch of 20 samples:

- ✧ One set of quality control (QC) samples.

Maintenance and Calibration

5.35 All in situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring programme.

Results and Observations

5.36 The monitoring results and graphical presentation of water quality at the monitoring stations is shown in **Appendix H.**

5.37 The summary of exceedance record in reporting month is shown in **Appendix L** and summarized in the **Table 5.5**.

Table 5.5 Summary of Water Quality Exceedances

Station	Exceedance Level	DO (Surface & Middle)		DO(Bottom)		Turbidity		SS		Total Number of Exceedances	
		Mid-Ebb	Mid-Flood	Mid-Ebb	Mid-Flood	Mid-Ebb	Mid-Flood	Mid-Ebb	Mid-Flood	Mid-Ebb	Mid-Flood
IS1	Action Level							18/09/2013		1	0
	Limit Level									0	0
IS2	Action Level									0	0
	Limit Level									0	0
IS3	Action Level									0	0
	Limit Level									0	0
IS4	Action Level									0	0
	Limit Level									0	0
SR1	Action Level									0	0
	Limit Level								21/09/2013	0	1
SR2	Action Level							25/09/2013	21/09/2013	1	1
	Limit Level									0	0
SR3	Action Level									0	0
	Limit Level									0	0
SR6	Action Level									0	0
	Limit Level									0	0
ST1	Action Level									0	0
	Limit Level									0	0
ST2	Action Level									0	0
	Limit Level									0	0
ST3	Action Level									0	0
	Limit Level									0	0
SRA	Action Level									0	0
	Limit Level									0	0
Total	Action Level	0	0	0	0	0	0	2	1		
	Limit Level	0	0	0	0	0	0	0	1		

5.38 All water quality monitoring was conducted as scheduled in the reporting month except the monitoring at mid-flood tide on 23 September 2013 which was cancelled due to adverse weather condition (Typhoon Signal No. 8 and 3 was hoisted). There is three Action Level and one Limit Level exceedances for suspended solids were recorded.

5.39 According to the investigation, no pollution discharge was observed from the marine works. The exceedance at the monitoring station which is situated at the upstream of the site and the exceeded results were similar or within the ranges baseline monitoring results. Therefore, the exceedances are considered not due to the Contract.

Event and Action Plan

5.40 Should non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix K** shall be carried out.

6 DOLPHIN-RELATED MONITORING

Monitoring Requirements

6.1 According to Section 10 of the EM&A Manual, four kinds of ecological monitoring works are required during the construction phase, namely dolphin monitoring, construction-phase underwater noise monitoring, dolphin behavior monitoring and land-based dolphin behavior and movement monitoring. The 30 days of construction-phase underwater noise monitoring, dolphin behavior monitoring and land-based dolphin behavior and movement monitoring were completed in July 2013.

6.2 The monitoring work shall be undertaken by suitably qualified specialist(s), (i.e. dolphin specialist and bio-acoustician), who shall have sufficient (at least 5-10 years) relevant post-graduate experience and publication in the respective aspects. They should be approved by Agriculture, Fisheries and Conservation Department (AFCD) and Environmental Protection Department (EPD).

6.3 Two days of additional Land-based Dolphin Behaviour and Movement Monitoring was conducted on 28th and 30th September 2013 in the reporting month. Monitoring Results and analysis will be presented in a separate report as the results analysis has not finished.

Dolphin Monitoring (Line-transect Vessel Survey)

Monitoring Requirements

6.4 According to EM&A Manual Section 10.3.2, a dolphin monitoring programme should be set up to verify the predictions of impacts and to ensure that there are no unforeseen impacts on the dolphin population during construction phase.

6.5 Following the requirement in the EM&A Manual Section 10.4.1, the dolphin monitoring should adopt line-transect vessel survey method, and cover the following line-transect survey areas as in AFCD annual marine mammal monitoring programme.

Monitoring Location

6.6 For this contract, dolphin monitoring will be carried out in the West Lantau (WL) along the line transect as depicted in **Figure 1** of **Appendix I**. The co-ordinates of all transect lines are shown in **Table 6.1**.

Table 6.1 Co-ordinates of transect lines in WL survey area

Line No.		Easting	Northing	Line No.		Easting	Northing
1	Start Point	803750	818500	7	Start Point	800200	810450
1	End Point	803750	815500	7	End Point	801400	810450
2	Start Point	803750	815500	8	Start Point	801300	809450
2	End Point	802940	815500	8	End Point	799750	809450
3	Start Point	802550	814500	9	Start Point	799400	808450

Line No.		Easting	Northing	Line No.		Easting	Northing
3	End Point	803700	814500	9	End Point	801430	808450
4	Start Point	803120	813600	10	Start Point	801500	807450
4	End Point	801640	813600	10	End Point	799600	807450
5	Start Point	801100	812450	11	Start Point	800300	806500
5	End Point	802900	812450	11	End Point	801750	806500
6	Start Point	802400	811500	12	Start Point	801760	805450
6	End Point	800660	811500	12	End Point	800700	805450

Monitoring Frequency

6.7 Dolphin transect survey was carried out at least twice a month (i.e. complete all the transect lines of West Lantau survey area twice per month) throughout the construction period.

Monitoring Day

6.8 Dolphin monitoring was carried out on 11th and 19th September 2013. The dolphin monitoring schedule for the reporting period is shown in **Appendix D**.

Monitoring Results

6.9 From these surveys, a total of 61.55 km of survey effort was collected, with 100.0% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) Out of the 61.55 km of survey effort, the total survey effort conducted on primary lines (the vertical lines perpendicular to the coastlines) was 40.43 km.

6.10 15 groups of 41 Chinese White Dolphins were sighted from primary lines. These dolphin groups were evenly distributed throughout the WL survey area, with no particular concentration. It appeared that more sightings were made in inshore waters than offshore waters. Notably, only one sighting was made near to the HKLR09 alignment.

6.11 Dolphin encounter rates deduced from the survey effort and on-effort sighting data made under favourable conditions (Beaufort 3 or below) are shown in **Table 6.2**.

Table 6.2 Dolphin encounter rates (sightings per 100 km of survey effort) in September's surveys

		Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	**Encounter rate (ANI)** (no. of dolphins from all on-effort sightings per 100 km of survey effort)
		Primary Lines Only	**Primary Lines Only**
WL	Set 1: Sept. 11th	34.9	94.8
	Set 2: Sept. 19th	35.5	112.6

6.12 A total of 15 re-sightings of known individual Chinese White Dolphins were made

during the September's surveys.

6.13 No adverse impact on Chinese white dolphins was noticeable from general observations.

6.14 Evaluation of impacts on dolphins due to construction work will be conducted in the quarterly EM&A report.

6.15 Detailed monitoring methodology and results can be found in **Appendix I**.

7 ENVIRONMENTAL SITE INSPECTION

Site Audits

7.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Contract site. The summaries of site audits are attached in **Appendix M**.

7.2 Site audits were conducted on 3rd, 10th, 17th and 27th September 2013 by ET after the commencement of construction works for the Contract. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 27th September 2013. The details of observations during site audit can refer to **Table 7.1**.

7.3 According to EP condition 4.7 and EM&A Manual, periodic monitoring (every three months) of construction works shall be conducted to ensure the avoidance of any impacts on Sha Lo Wan (West) Archaeological Site. Access to Sha Lo Wan (West) Archaeological site for works areas and storage of construction equipment is not allowed. The 3rd inspection to the Sha Lo Wan (West) Archaeological Site was conducted on 10th September 2013 and next inspection will be conducted in December 2013. No access to Sha Lo Wan (West) Archaeological site for works areas and storage of construction equipment was observed.

Implementation Status of Environmental Mitigation Measures

7.4 According to the EIA Study Report, Environmental Permit and the EM&A Manual, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the EMIS is provided in **Appendix N**.

7.5 Regular marine travel route for marine vessels were implemented properly in accordance with the submitted plan and relevant records were kept properly.

7.6 Acoustic decoupling measures for the stationary equipment (generators, winch generators and air compressors) mounted on boards were adopted according to the approved Acoustic Decoupling Measures Plan.

7.7 Dolphin exclusion zone was implemented by ET's trained dolphin observer in accordance with EP Condition 3.4. In addition, dolphin exclusion zone and dolphin watching plan according to EM&A Manual, Section 10.2.12 and EP Condition 3.5 was implemented by DCVJV's trained dolphin watcher.

7.8 Spill kits and booms are ready on site for the event of accidental spillage of oil or other hazardous chemicals from construction activities including vessels operating for the Contract.

7.9 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 7.1**.

Table 7.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	10/09/2013	Clear the residual silt and debris at the platform at P20.	Rectification/improvement was observed during the follow-up audit session on 17 September 2013.
	17/09/2013	Review the drainage plan at Portion C to avoid accumulating ponding water.	Rectification/improvement was observed during the follow-up audit session on 27 September 2013.
Ecology	N/A[(1)]	N/A[(1)]	N/A[(1)]
Air Quality	10/09/2013	Properly check the air compressor to avoid heavy smoke at P47.	Rectification/improvement was observed during the follow-up audit session on 17 September 2013.
	27/09/2013	Exposed stockpile should be properly covered by tarpaulin to avoid dust emission. (Portion C)	Rectification/improvement was observed during the follow-up audit session on 2 October 2013.
Noise	10/09/2013	Properly implement the acoustic decoupling measures for the water pump at P0.	Rectification/improvement was observed during the follow-up audit session on 17 September 2013.
	17/09/2013	Provide the noise label for the air compressor at Portion C.	Rectification/improvement was observed during the follow-up audit session on 27 September 2013.
Waste / Chemical Management	03/09/2013	Clear the oil spillage from the air compressor at Portion C.	Rectification/improvement was observed during the follow-up audit session on 10 September 2013.
	03/09/2013	Remove the pipe at the drainage channel at Portion C.	Rectification/improvement was observed during the follow-up audit session on 10 September 2013.
	03/09/2013	Remove the chemical container which placed at near the drain at Portion C.	Rectification/improvement was observed during the follow-up audit session on 10 September 2013.
	17/09/2013	Clear the rubbish at the back of office containers at Portion C.	Rectification/improvement was observed during the follow-up audit session on 27 September 2013.
	27/09/2013	General refuse should be properly disposed of and separated from C&D waste materials. (Portion C)	Rectification/improvement was observed during the follow-up audit session on 2 October 2013.
	27/09/2013	Fencing and other construction materials should be kept a distance from tree protection zone. (Portion C)	Rectification/improvement was observed during the follow-up audit session on 2 October 2013.
Landscape & Visual Impact	N/A[(1)]	N/A[(1)]	N/A[(1)]
Other(s)	N/A[(1)]	N/A[(1)]	N/A[(1)]
Cultural Heritage (Sha Lo Wan (West) Archaeological	10/09/2013	N/A[(1)]	N/A[(1)]

Parameters	Date	Observations and Recommendations	Follow-up
Site)			

Remark: N/A[(1)] - No major environmental deficiency was identified during the site inspection in the reporting month.

Advice on the Solid and Liquid Waste Management Status

7.10 According to the Contractor, 8,412m^3 inert C&D materials were generated during the reporting month.

7.11 The Contractor was advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in approved waste management plan shall be fully implemented.

7.12 The amount of wastes generated by the activities of the Contract during the reporting month is shown in **Appendix O**.

8 ENVIRONMENTAL NON-CONFORMANCE (EXCEEDANCES)

Summary of Exceedances

8.1 Summary of exceedance is provided in **Appendix L**.

8.2 No Action/Limit Level exceedance was recorded for air quality and construction noise.

8.3 All water quality monitoring was conducted as scheduled in the reporting month. There is three Action Level and one Limit Level exceedances for suspended solids were recorded.

8.4 According to the investigation, no pollution discharge was observed from the marine works. The exceedance at the monitoring station which is situated at the upstream of the site and the exceeded results were similar or within the ranges baseline monitoring results. Therefore, the exceedances are considered not due to the Contract.

Summary of Environmental Complaint

8.5 No environmental related complaint was received in the reporting month. The Complaint Log is attached in **Appendix P**.

Summary of Notification of Summons and Successful Prosecution

8.6 There was no prosecution or notification of summons received since the Contract commencement.

9 FUTURE KEY ISSUES

Key Issues in the Coming Month

9.1 Major site activities for the coming reporting month will include:

WA4

- Fabrication of rebar cages
- Fabrication of temporary piling platforms

WA7

- Fabrication of rebar cages
- Loading and Unloading

Marine Viaduct (P0 to P84)

- Piling works for the temporary jetty
- Installation of temporary casings
- Pile excavation by RCD method
- Pile excavation by Kelly method
- Sonic Test
- Installation of permanent casing
- Installation of temporary piles for piling platform
- Predrilling works

Land Viaduct (P85 to P114)

- Land piling and concreting works
- Formation of piling platform along seawall
- Site clearance
- Formation of site access along the top of the existing seawall
- Marine landing access establishment work
- Drainage and water main diversion
- Predrilling works
- Concrete surrounding works for slewed telecommunication cables
- Trench excavation for slewing of AAHK's COM cable
- Tree felling/transplant work
- Pile head excavation / trimming
- Pile cap and column construction

Monitoring Schedule for the Next Month

9.2 The tentative environmental monitoring schedule for the next month is shown in **Appendix D**.

Construction Programme for the Next Month

9.3 A tentative construction programme is provided in **Appendix A**.

10 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

10.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken in September 2013 in accordance with EM&A Manual.

10.2 No Action/Limit Level exceedance was recorded for air quality and construction noise.

10.3 For water quality monitoring, there is three Action Level and one Limit Level exceedances for suspended solids were recorded.

10.4 According to the investigation, no pollution discharge was observed from the marine works. The exceedance at the monitoring station which is situated at the upstream of the site and the exceeded results were similar or within the ranges baseline monitoring results. Therefore, the exceedances are considered not due to the Contract.

10.5 Dolphin transect survey was carried out on 11th and 19th September 2013. No adverse impact on Chinese White Dolphins was noticeable from general observations.

10.6 Two days of additional Land-based Dolphin Behaviour and Movement Monitoring was conducted on 28th and 30th September 2013 in the reporting month. Monitoring Results and analysis will be presented in a separate report

10.7 Environmental site inspection was conducted on 3rd, 10th, 17th and 27th September 2013 by ET in the reporting month. All deficiencies identified during the site inspection have already rectified / improved during the follow-up audit session.

10.8 The inspection to the Sha Lo Wan (West) Archaeological Site was conducted on 10th September 2013. No access to Sha Lo Wan (West) Archaeological site for works areas and storage of construction equipment was observed.

10.9 There was no environmental complaint, no notification of summons and successful prosecution received.

10.10 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

10.11 According to the environmental audit performed in the reporting month, the following recommendations were made:

Air Quality Impact

- To regularly maintain the quality of machinery and vehicles on site.
- To implement dust suppression measures on all haul roads, stockpiles, dry surfaces and excavation works.
- To provide hoarding along the entire length of that portion of the site boundary.

Noise Impact

- To inspect the noise sources inside the site.
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers.
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers, if necessary.

Water Impact

- To prevent any surface runoff discharge into any stream course and sea.
- To review and implement temporary drainage system.
- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review the capacity of de-silting facilities for discharge.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.
- To avoid accumulation of stagnant and ponding water on site.

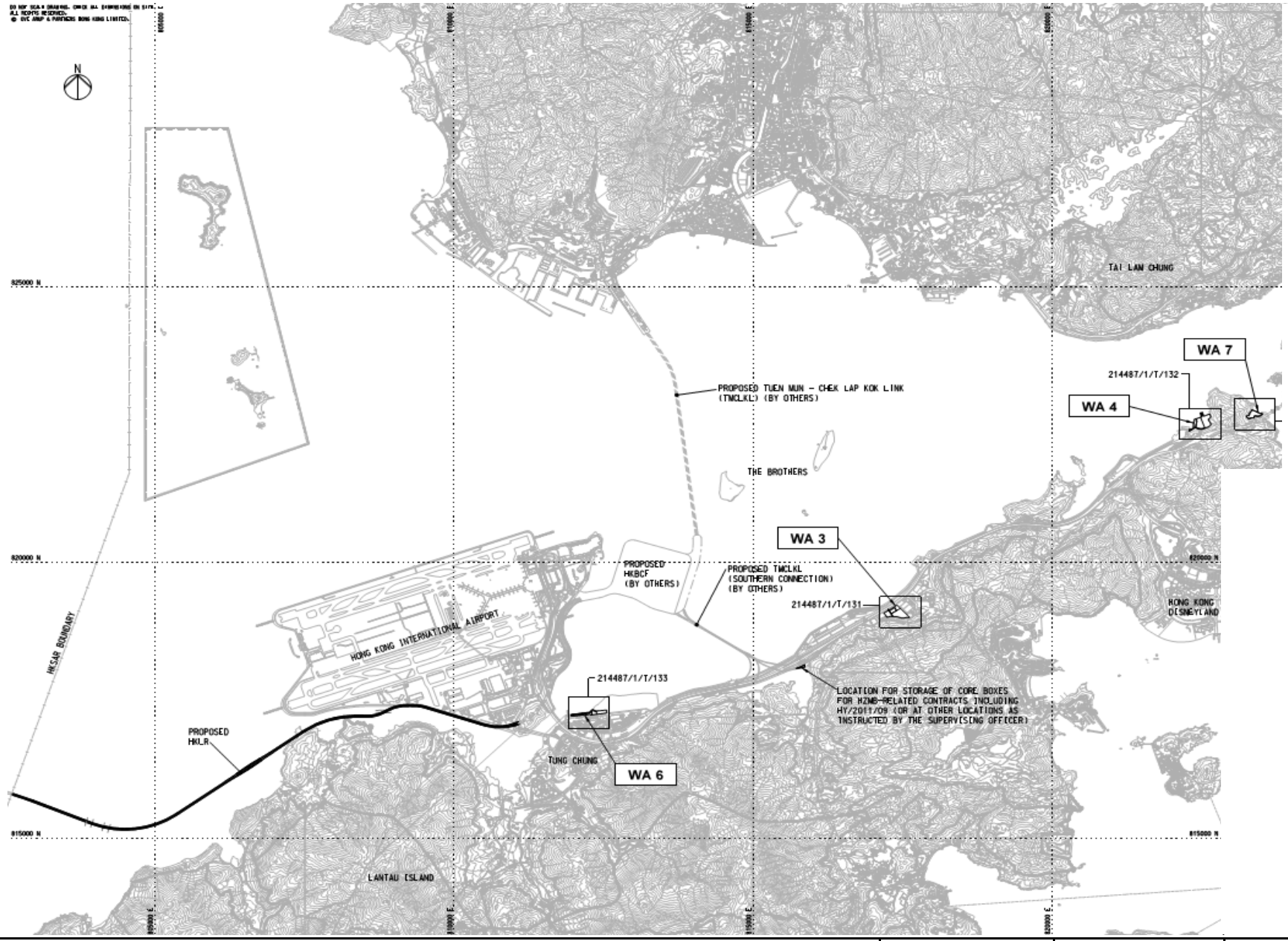
Ecology Impact

- To implement Spill Response Plan in the event of accidental spillage of or other hazardous chemicals.
- To implement Dolphin Exclusion Zone during the installation of bored pile casing located in the waters to the west of Airport.
- To implement Dolphin Watching Plan after the bored piling casing is installed.
- To ensure the acoustically-decoupled measures were implemented for air compressors and other noisy equipment mounted on construction vessels according to acoustic decoupling measures plan.

Waste/Chemical Management

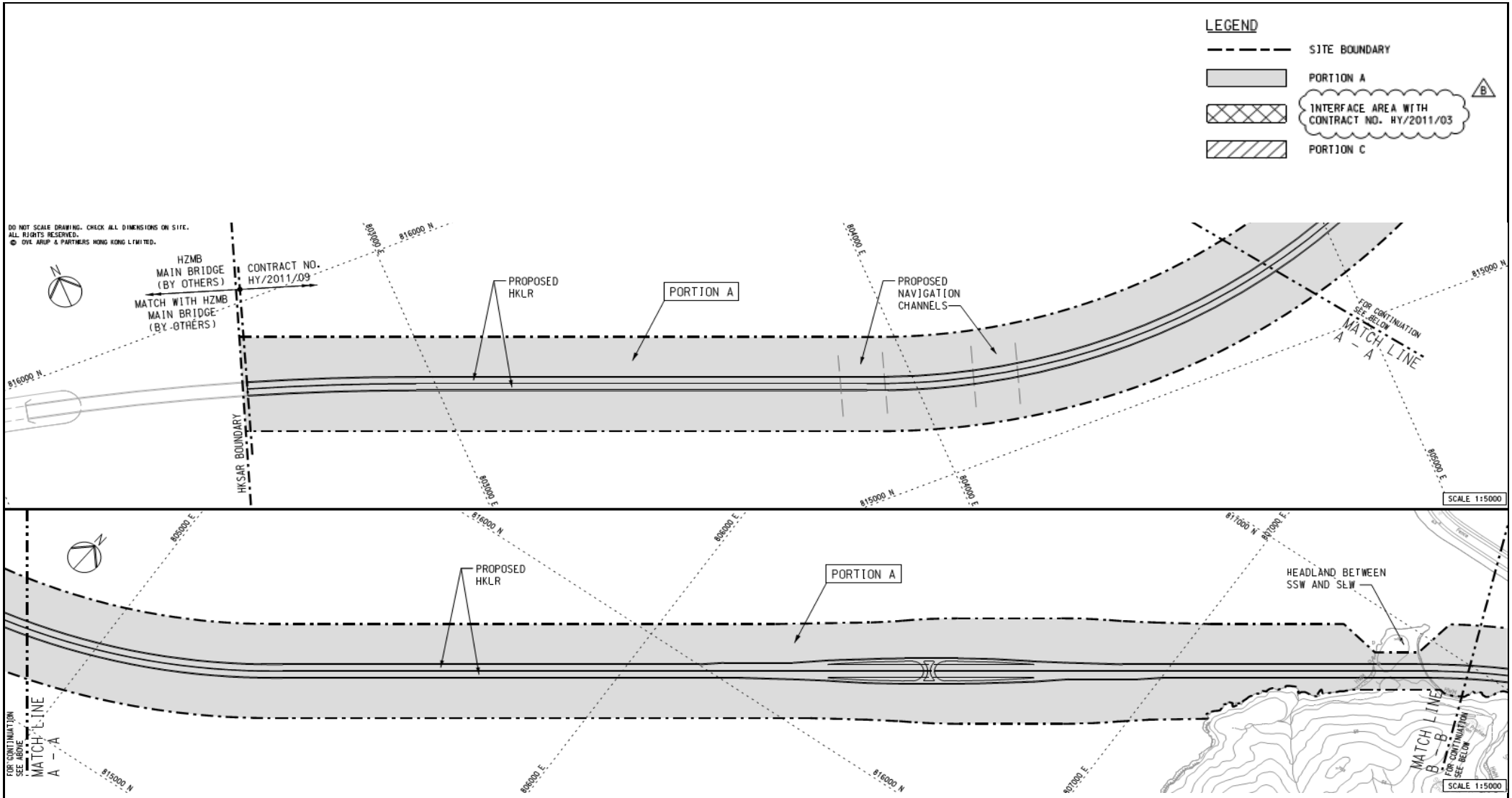
- To check for any accumulation of waste materials or rubbish on site.
- To ensure the performance of sorting of C&D materials at source (during generation);
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To avoid improper handling or storage of oil drum on site.

FIGURE(S)



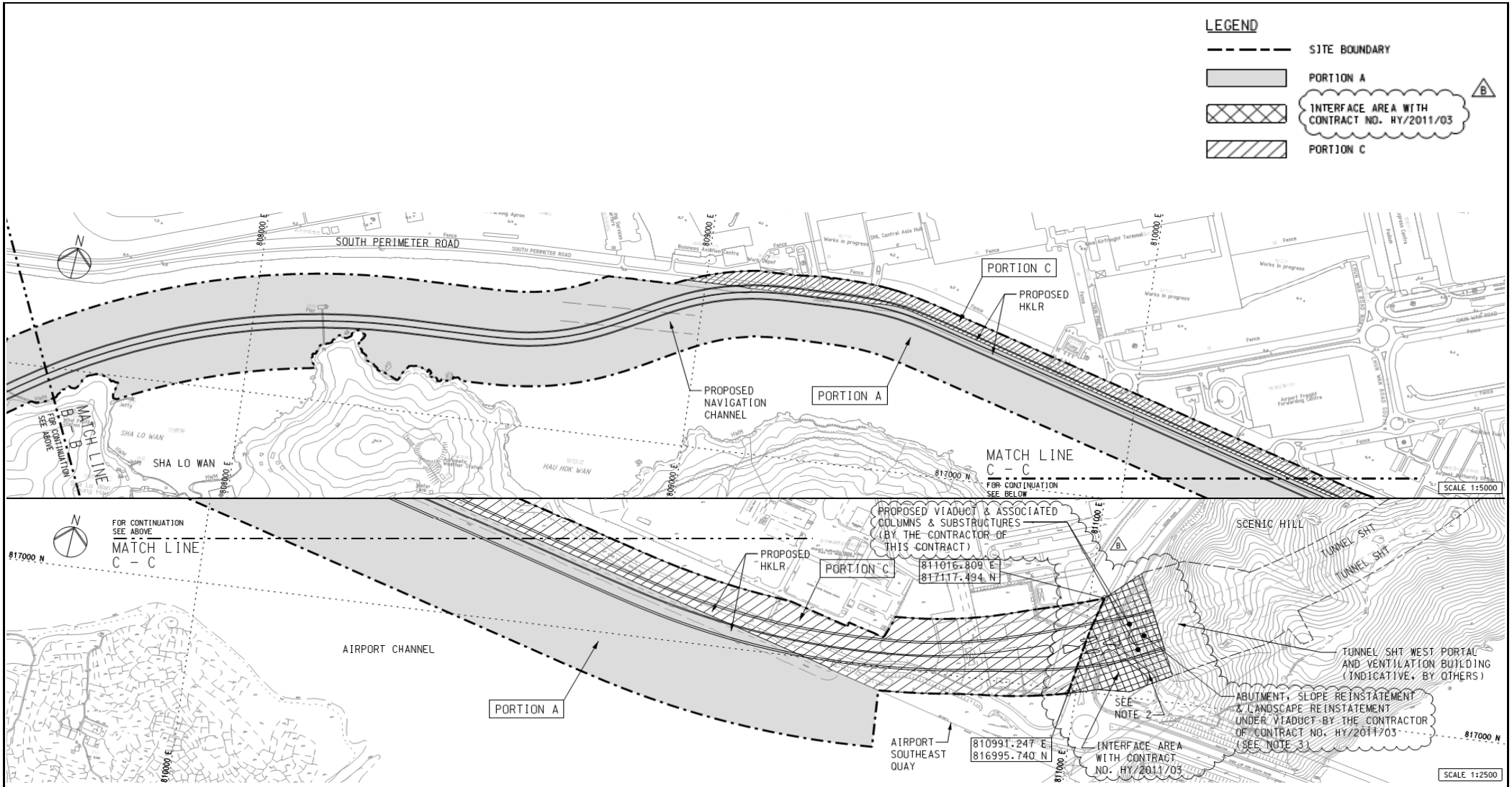
Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (WA3, WA4, WA6 and WA7)	Scale: N.T.S Date: Feb-13	Proposa No. MA12014 Figure: 1a

CINOTECH



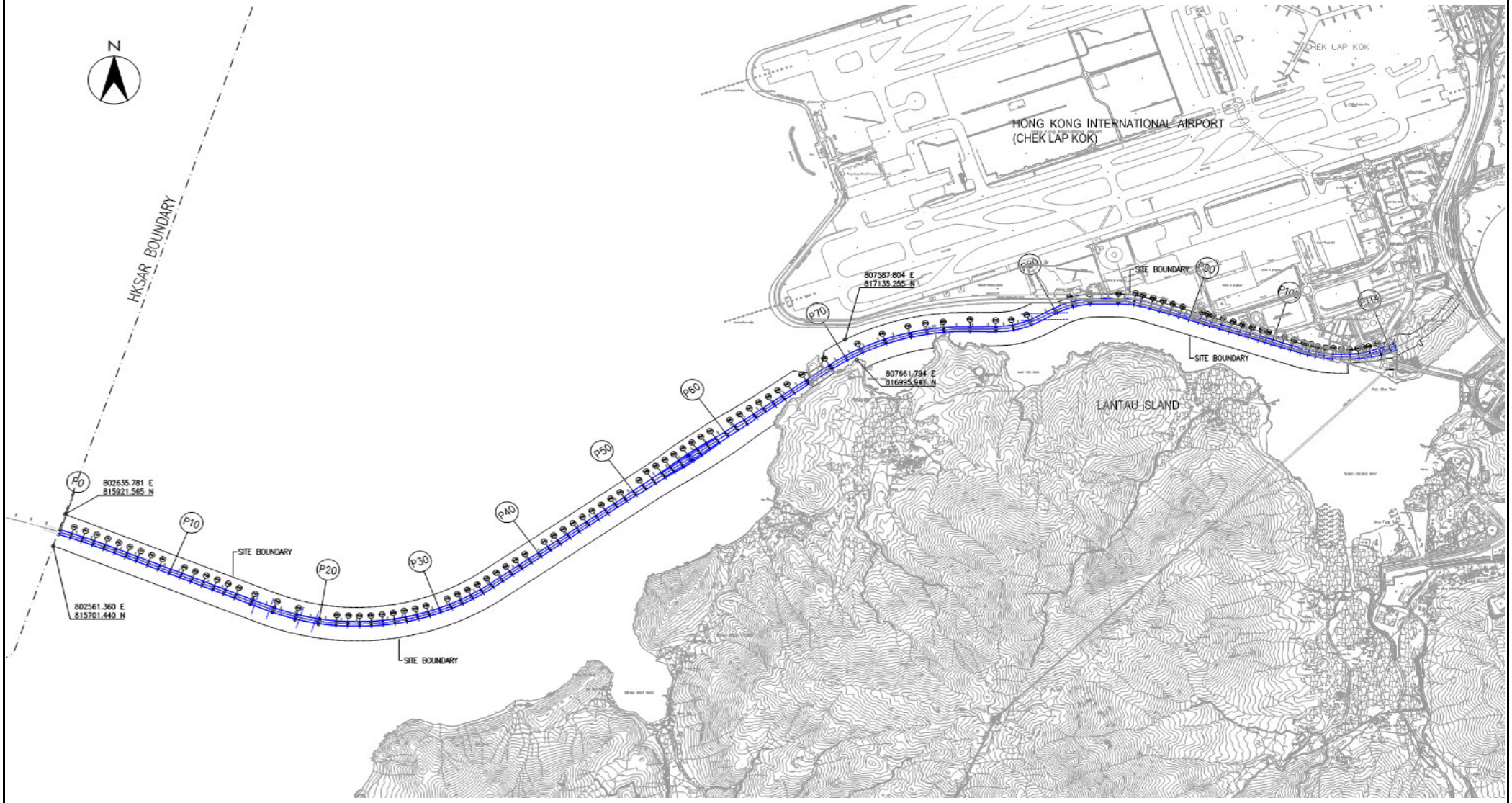
Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (Portion A)	Scale: N.T.S Date: May-13	Proposa No.: MA12014 Figure: 1b

CINOTECH



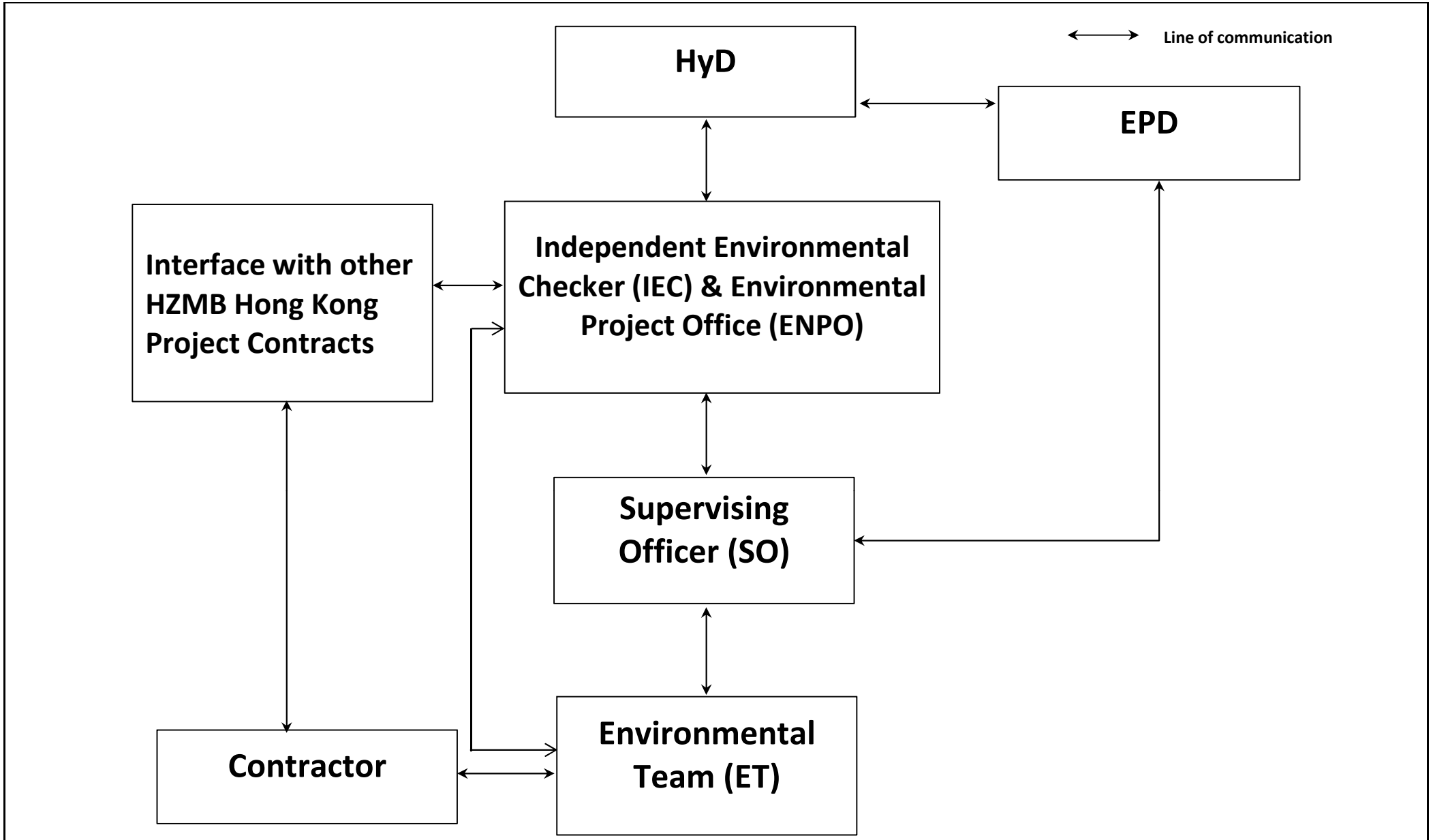
Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (Portion A and C)	Scale N.T.S Date May-13	Proposa No. MA12014 Figure 1c

CINOTECH

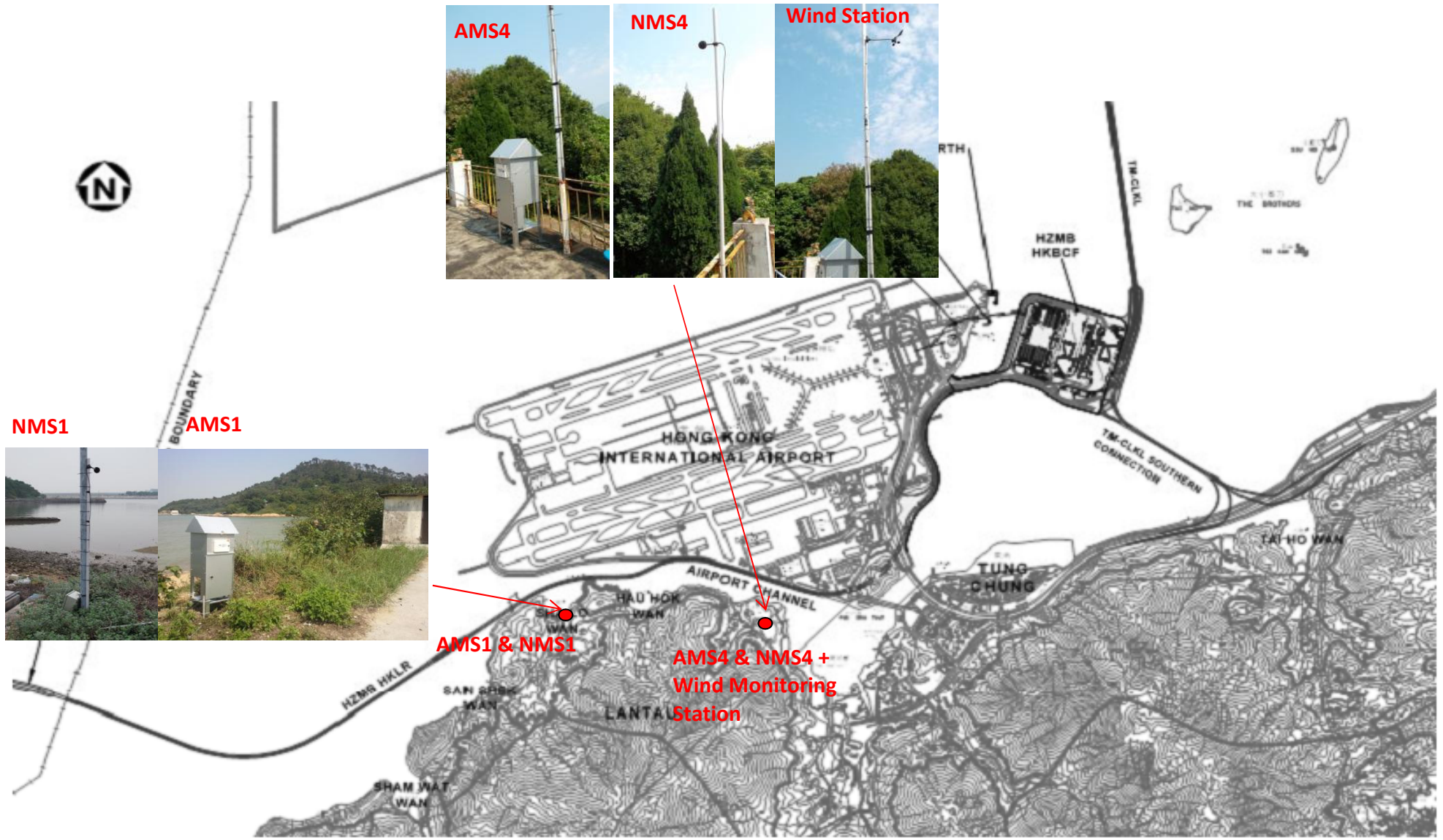


Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (Pier(s) Site)	Scale: N.T.S Date: Feb-13	Proposa No. MA12014 Figure: 1d

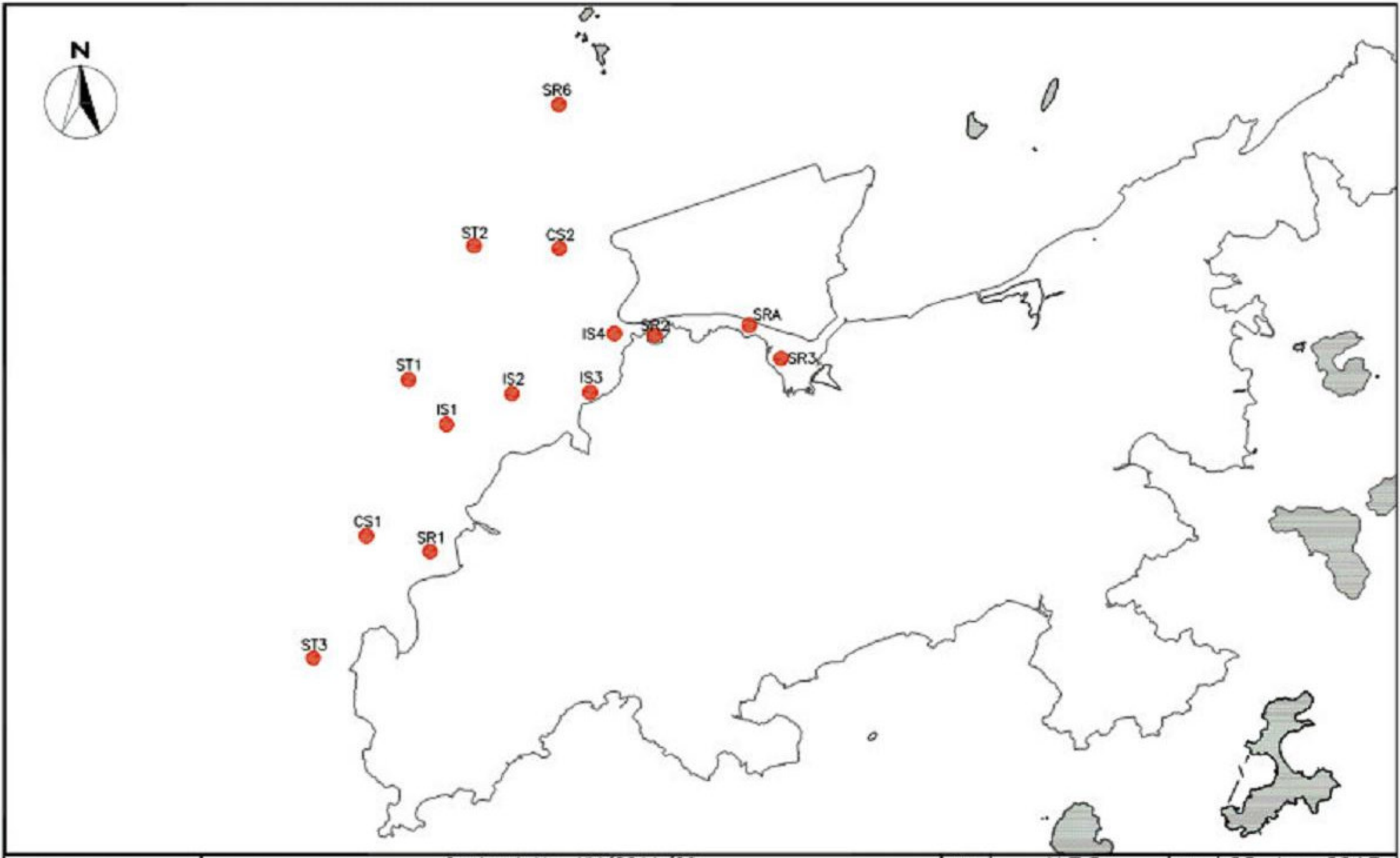
CINOTECH



Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Project Organisation for Environmental Works	Scale N.T.S Date Feb-13	Proposa No. MA12014 Figure 2	CINOTECH



Title	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Locations of Air Quality and Noise Monitoring Stations	Scale: N.T.S Date: Feb-13	Proposa No. MA12014 Figure: 3	CINOTECH



CINOTECH
Cinotech Consultants Limited

Contract No. HY/2011/09
Hong Kong–Zhuhai–Macao Bridge Hong Kong Link Road – Section Between HKSAR Boundary and Scenic Hill
Locations of Marine Water Quality Monitoring Stations

SCALE	N.T.S	DATE	28 Jan 2013
CHECK	PC	DRAWN	IT
PROJECT NO.	MA12014	FIGURE NO.	4
		REV	–

APPENDIX A
CONSTRUCTION PROGRAMME

Dragages - China Harbour - VSL Joint Venture 寶嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)									
Project Key Dates									
KD1007	Completion of Stage 1 of Works (548d) Complete interface pier with HZMB	0	0		29/11/13*		29/11/13		
Design and Design Checking of the Works									
Detailed Design Approval (DDA)									
Foundation									
Western Water									
DDA02.01-20	Comment Design DDA - ML02L/R	35	0	29/06/13 A	07/09/13 A	29/06/13	02/08/13		
DDA02.01-30	Resubmit Design DDA with DC Certificate - ML02L/R	21	0	08/09/13 A	14/09/13 A	04/08/13	24/08/13		
DDA02.01-40	Approve Design DDA - ML02L/R	35	21	15/09/13 A	18/10/13	25/08/13	28/09/13		
DDA04.01-30	Resubmit Design DDA with DC Certificate - ML04L/R	21	0	23/08/13 A	29/08/13 A	13/08/13	02/09/13		
DDA04.01-40	Approve Design DDA - ML04L/R	35	4	30/08/13 A	01/10/13	03/09/13	07/10/13		
DDA05.01-40	Approve Design DDA - ML05L/R	35	0	30/07/13 A	02/09/13 A	06/08/13	09/09/13		
Airport Channel									
DDA13.01-30	Resubmit Design DDA with DC Certificate - ML13L/R	25	0	06/07/13 A	29/08/13 A	16/07/13	09/08/13		
DDA13.01-40	Approve Design DDA - ML13L/R	35	7	30/08/13 A	04/10/13	10/08/13	13/09/13		
DDA14.01-10	Prepare and submit Design DDA - ML14L/R	92	0	08/05/13 A	29/08/13 A	28/05/13	27/08/13		
DDA14.01-20	Comment Design DDA - ML14L/R	35	7	30/08/13 A	04/10/13	08/08/13	11/09/13		
DDA14.01-30	Resubmit Design DDA with DC Certificate - ML14L/R	25	25	05/10/13	29/10/13	12/09/13	06/10/13		
DDA14.01-40	Approve Design DDA - ML14L/R	35	35	30/10/13	03/12/13	07/10/13	10/11/13		
Airport Island									
DDA15.01-20	Comment Design DDA - ML15L/R	35	1	13/07/13 A	28/09/13	13/07/13	16/08/13		
DDA15.01-30	Resubmit Design DDA with DC Certificate - ML15L/R	25	25	29/09/13	23/10/13	17/08/13	10/09/13		
DDA15.01-40	Approve Design DDA - ML15L/R	35	35	24/10/13	27/11/13	11/09/13	15/10/13		
DDA16.01-20	Comment Design DDA - ML16L/R	35	0	19/06/13 A	11/09/13 A	29/06/13	02/08/13		
DDA16.01-30	Resubmit Design DDA with DC Certificate - ML16L/R	25	0	12/09/13 A	18/09/13 A	24/07/13	17/08/13		
DDA16.01-40	Approve Design DDA - ML16L/R	35	23	19/09/13 A	20/10/13	18/08/13	21/09/13		
Substructure									
Western Water									
DDA01.02-30	Resubmit Design DDA with DC Certificate - ML01L/R	25	1	03/07/13 A	28/09/13	16/07/13	09/08/13		
DDA01.02-40	Approve Design DDA - ML01L/R	35	35	29/09/13	02/11/13	10/08/13	13/09/13		
DDA02.02-10	Prepare and submit Design DDA - ML02L/R	30	0	26/08/13 A	26/09/13 A	02/11/13	01/12/13		
DDA02.02-20	Comment Design DDA - ML02L/R	35	34	27/09/13 A	31/10/13	02/12/13	05/01/14		
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DDA02.02-40	Approve Design DDA - ML02L/R	35	35	26/11/13	30/12/13	31/01/14	06/03/14		
DDA04.02-10	Prepare and submit Design DDA - ML04L/R	30	0	26/08/13 A	26/09/13 A	03/10/13	01/11/13		
DDA04.02-20	Comment Design DDA - ML04L/R	35	34	27/09/13 A	31/10/13	02/11/13	06/12/13		
DDA04.02-30	Resubmit Design DDA with DC Certificate - ML04L/R	25	25	01/11/13	25/11/13	07/12/13	31/12/13		
DDA04.02-40	Approve Design DDA - ML04L/R	35	35	26/11/13	30/12/13	01/01/14	04/02/14		
DDA05.02-20	Comment Design DDA - ML05L/R	35	0	24/07/13 A	28/09/13	03/10/13	06/11/13		
DDA05.02-30	Resubmit Design DDA with DC Certificate - ML05L/R	25	25	28/09/13	22/10/13	07/11/13	01/12/13		
DDA05.02-40	Approve Design DDA - ML05L/R	35	35	23/10/13	26/11/13	02/12/13	05/01/14		
DDA06.02-20	Comment Design DDA - ML06L/R	35	0	12/06/13 A	28/09/13	03/09/13	07/10/13		
DDA06.02-30	Resubmit Design DDA with DC Certificate - ML06L/R	25	25	28/09/13*	22/10/13	18/07/13	11/08/13		
DDA06.02-40	Approve Design DDA - ML06L/R	35	35	23/10/13	26/11/13	12/08/13	15/09/13		
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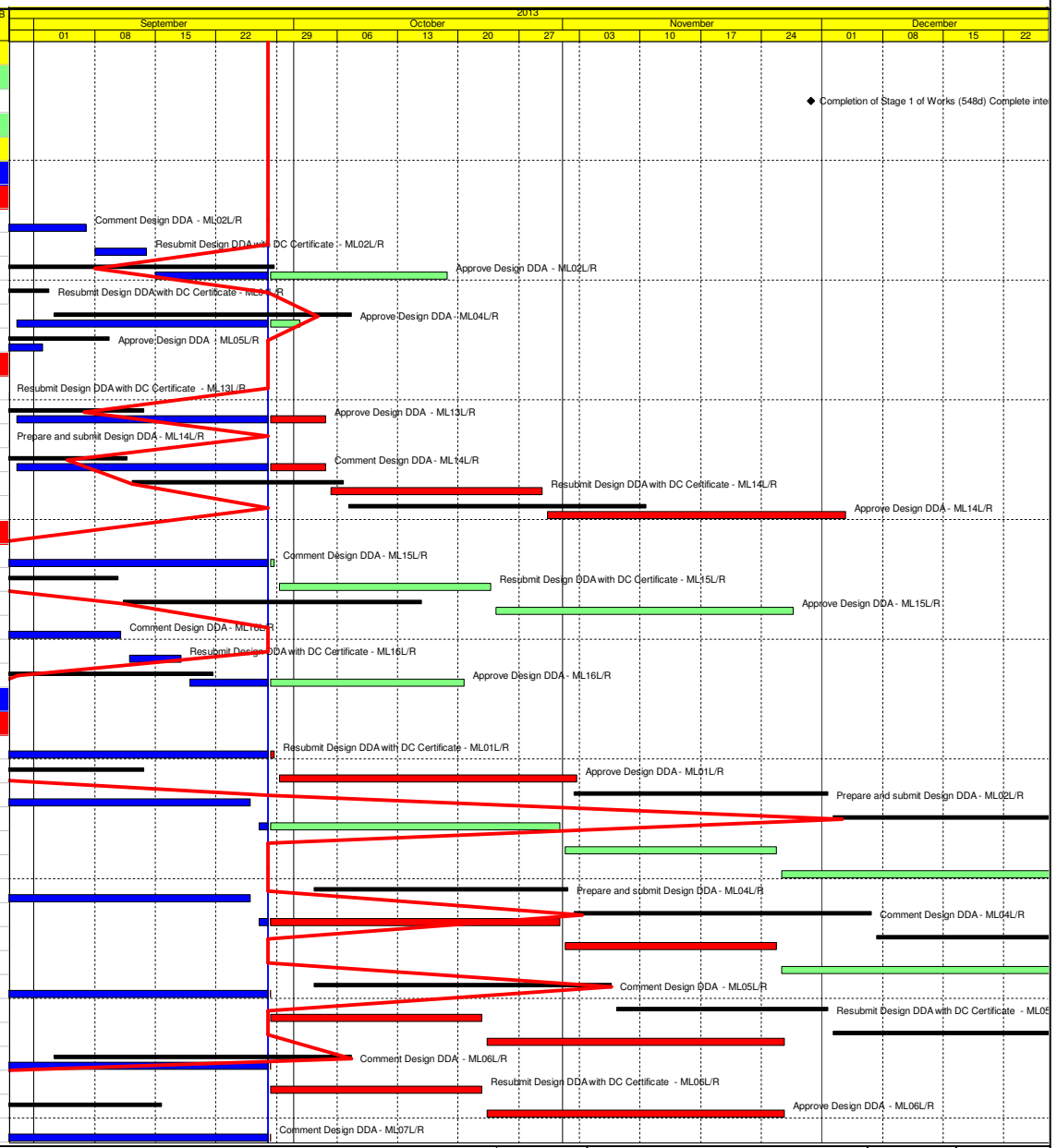

DWP_01a Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone
DWP_00B Programme

HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

Date	Revision	Checked	Approved
27/09/13	1309 rolling	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
DDA07.02-30	Resubmit Design DDA with DC Certificate - ML07L/R	25	25	28/09/13	22/10/13	14/06/13	08/07/13		
DDA07.02-40	Approve Design DDA - ML07L/R	35	35	23/10/13	26/11/13	15/07/13	18/08/13		
DDA08.02-20	Comment Design DDA - ML08L/R (with trunaround)	35	0	01/06/13 A	28/09/13	04/08/13	07/09/13		
DDA08.02-30	Resubmit Design DDA with DC Certificate - ML08L/R (with trunaround)	25	25	28/09/13	22/10/13	15/07/13	08/08/13		
DDA08.02-40	Approve Design DDA - ML08L/R (with trunaround)	35	35	23/10/13	26/11/13	09/08/13	12/09/13		
DDA09.02-20	Comment Design DDA - ML09L/R	35	0	30/07/13 A	28/09/13	03/09/13	07/10/13		
DDA09.02-30	Resubmit Design DDA with DC Certificate - ML09L/R	25	25	28/09/13	22/10/13	08/10/13	01/11/13		
DDA09.02-40	Approve Design DDA - ML09L/R	35	35	23/10/13	26/11/13	02/11/13	06/12/13		
Navigation Channel									
DDA03.02-30	Resubmit Design DDA with DC Certificate - ML03L/R (with Dolphin)	25	0	19/07/13 A	28/09/13	15/07/13	08/08/13		
DDA03.02-40	Approve Design DDA - ML03L/R (with Dolphin)	35	35	28/09/13	01/11/13	09/08/13	12/09/13		
Airport Channel									
DDA10.02-20	Comment Design DDA - ML10L/R	35	0	09/05/13 A	28/09/13	08/05/13	11/06/13		
DDA10.02-30	Resubmit Design DDA with DC Certificate - ML10L/R	25	25	28/09/13	22/10/13	15/07/13	08/08/13		
DDA10.02-40	Approve Design DDA - ML10L/R	35	35	23/10/13	26/11/13	09/08/13	12/09/13		
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DDA11.02-30	Resubmit Design DDA with DC Certificate - ML11L/R	25	25	28/09/13	22/10/13	15/07/13	08/08/13		
DDA11.02-40	Approve Design DDA - ML11L/R	35	35	23/10/13	26/11/13	09/08/13	12/09/13		
DDA12.02-20	Comment Design DDA - ML12L/R	35	0	19/07/13 A	28/09/13	15/07/13	18/08/13		
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DDA13.02-40	Approve Design DDA - ML13L/R	35	35	23/10/13	26/11/13	05/10/13	08/11/13		
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DDA14.02-30	Resubmit Design DDA with DC Certificate - ML14L/R	25	25	28/10/13	21/11/13	28/10/13	21/11/13		
DDA14.02-40	Approve Design DDA - ML14L/R	35	35	22/11/13	26/12/13	22/11/13	26/12/13		
Airport Island									
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DDA15.02-30	Resubmit Design DDA with DC Certificate - ML15L/R	25	25	03/10/13	27/10/13	27/09/13	21/10/13		
DDA15.02-40	Approve Design DDA - ML15L/R	35	35	28/10/13	01/12/13	22/10/13	25/11/13		
DDA16.02-20	Comment Design DDA - ML16L/R	35	0	18/07/13 A	28/09/13	15/07/13	18/08/13		
DDA16.02-30	Resubmit Design DDA with DC Certificate - ML16L/R	25	25	28/09/13	22/10/13	19/08/13	12/09/13		
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DDA18.02-40	Approve Design DDA - ML18L/R	35	0	03/08/13 A	28/09/13	11/08/13	14/09/13		
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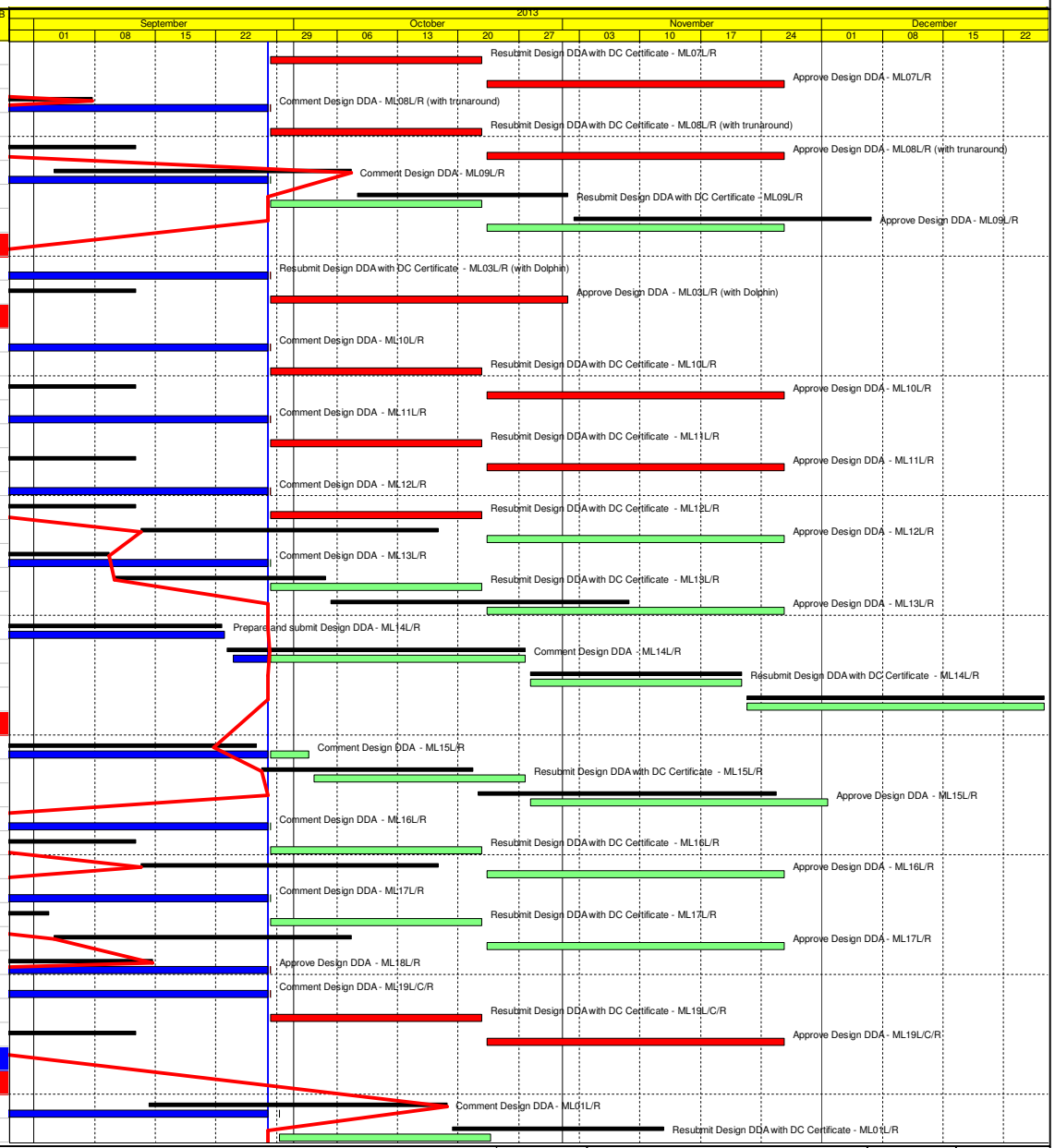
DDA19.02-40	Approve Design DDA - ML19L/C/R	35	35	23/10/13	26/11/13	09/08/13	12/09/13		
Superstructure									
Western Water									
DDA01.03-20	Comment Design DDA - ML01L/R	35	0	27/07/13 A	29/09/13	14/09/13	18/10/13		
DDA01.03-30	Resubmit Design DDA with DC Certificate - ML01L/R	25	25	29/09/13	23/10/13	19/10/13	12/11/13		



DWP_01a Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone
DWP_00B Programme

HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

Date	Revision	Checked	Approved
27/09/13	1309 rolling	Tim	

Dragages - China Harbour - VSL Joint Venture 寶嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
DDA01.03-40	Approve Design DDA - ML01L/R	35	35	24/10/13	27/11/13	13/11/13	17/12/13		
DDA04.03-10	Prepare and submit Design DDA - ML04L/R	35	35	26/11/13	30/12/13	08/03/14	11/04/14		
DDA05.03-20	Comment Design DDA - ML05L/R	35	0	23/08/13 A	28/09/13	08/03/14	11/04/14		
DDA05.03-30	Resubmit Design DDA with DC Certificate - ML05L/R	25	25	28/09/13	22/10/13	12/04/14	06/05/14		
DDA05.03-40	Approve Design DDA - ML05L/R	35	35	23/10/13	26/11/13	07/05/14	10/06/14		
DDA06.03-20	Comment Design DDA - ML06L/R	35	0	06/08/13 A	28/09/13	23/11/13	27/12/13		
DDA06.03-30	Resubmit Design DDA with DC Certificate - ML06L/R	25	25	28/09/13	22/10/13	28/12/13	21/01/14		
DDA06.03-40	Approve Design DDA - ML06L/R	35	35	23/10/13	26/11/13	22/01/14	25/02/14		
DDA07.03-40	Approve Design DDA - ML07L/R	35	0	26/07/13 A	28/09/13	09/08/13	12/09/13		
DDA08.03-20	Comment Design DDA - ML08L/R	35	0	01/08/13 A	28/09/13	19/10/13	22/11/13		
DDA08.03-30	Resubmit Design DDA with DC Certificate - ML08L/R	25	25	28/09/13	22/10/13	23/11/13	17/12/13		
DDA08.03-40	Approve Design DDA - ML08L/R	35	35	23/10/13	26/11/13	18/12/13	21/01/14		
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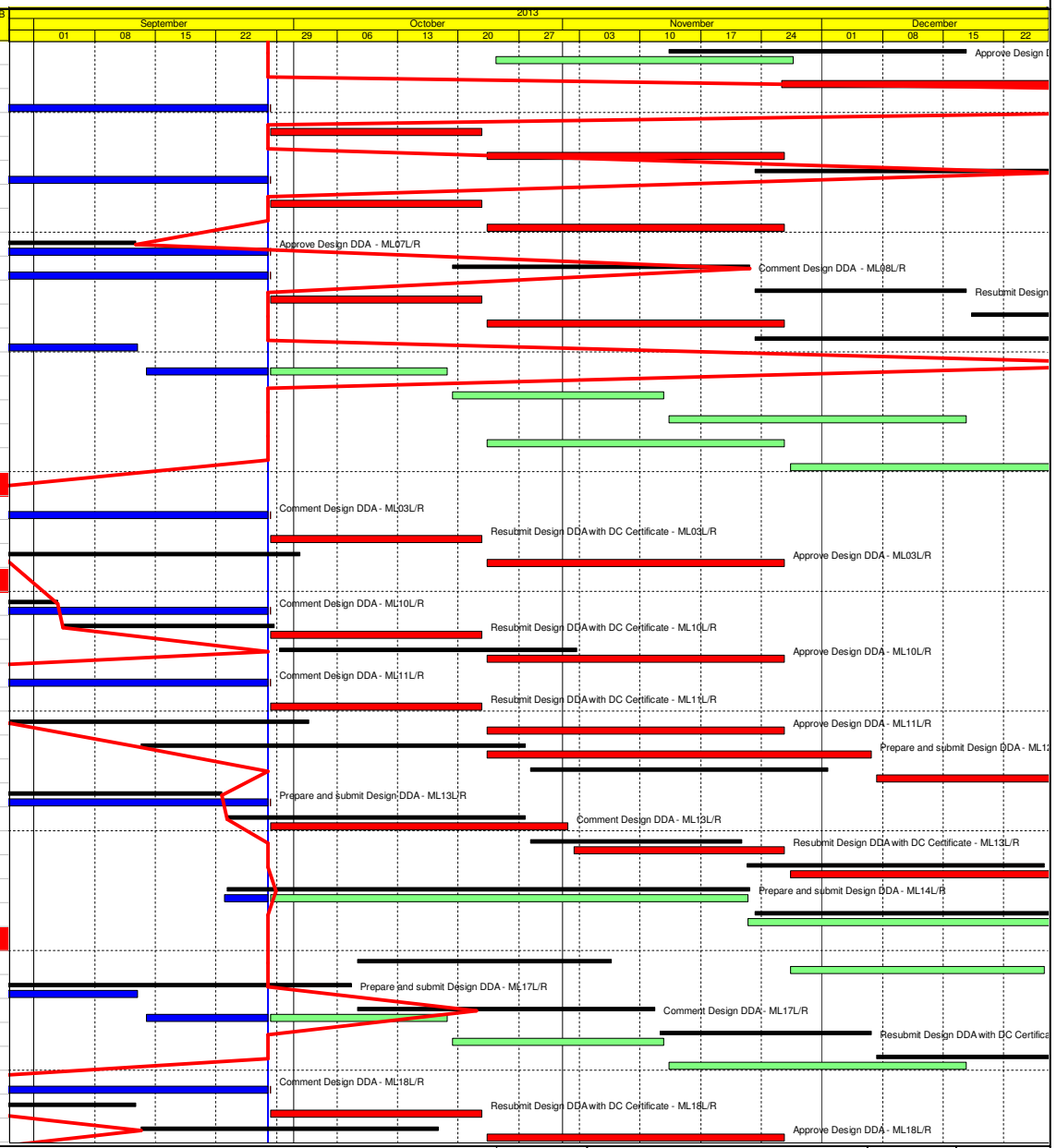
DDA09.03-20	Comment Design DDA - ML09L/R	35	21	14/09/13 A	18/10/13	28/12/13	31/01/14		
DDA09.03-30	Resubmit Design DDA with DC Certificate - ML09L/R	25	25	19/10/13	12/11/13	01/02/14	25/02/14		
DDA09.03-40	Approve Design DDA - ML09L/R	35	35	13/11/13	17/12/13	26/02/14	01/04/14		
DDATR.03-10	Prepare and submit Design DDA - MTL01,02 & MTR01,02	35	35	23/10/13	26/11/13	28/12/13	31/01/14		
DDATR.03-20	Comment Design DDA - MTL01,02 & MTR01,02	35	35	27/11/13	31/12/13	01/02/14	07/03/14		
Navigation Channel									
DDA03.03-20	Comment Design DDA - ML03L/R	35	0	29/06/13 A	28/09/13	29/06/13	02/08/13		
DDA03.03-30	Resubmit Design DDA with DC Certificate - ML03L/R	25	25	28/09/13	22/10/13	03/08/13	27/08/13		
DDA03.03-40	Approve Design DDA - ML03L/R	35	35	23/10/13	26/11/13	28/08/13	01/10/13		
Airport Channel									
DDA10.03-20	Comment Design DDA - ML10L/R	35	0	06/08/13 A	28/09/13	31/07/13	03/09/13		
DDA10.03-30	Resubmit Design DDA with DC Certificate - ML10L/R	25	25	28/09/13	22/10/13	04/09/13	28/09/13		
DDA10.03-40	Approve Design DDA - ML10L/R	35	35	23/10/13	26/11/13	29/09/13	02/11/13		
DDA11.03-20	Comment Design DDA - ML11L/R	35	0	29/06/13 A	28/09/13	29/06/13	02/08/13		
DDA11.03-30	Resubmit Design DDA with DC Certificate - ML11L/R	25	25	28/09/13	22/10/13	04/08/13	28/08/13		
DDA11.03-40	Approve Design DDA - ML11L/R	35	35	23/10/13	26/11/13	29/08/13	02/10/13		
DDA12.03-10	Prepare and submit Design DDA - ML12L/R	45	45	23/10/13	06/12/13	13/09/13	27/10/13		
DDA12.03-20	Comment Design DDA - ML12L/R	35	35	07/12/13	10/01/14	28/10/13	01/12/13		
DDA13.03-10	Prepare and submit Design DDA - ML13L/R	48	0	06/08/13 A	28/09/13	06/08/13	22/09/13		
DDA13.03-20	Comment Design DDA - ML13L/R	35	35	28/09/13	01/11/13	23/09/13	27/10/13		
DDA13.03-30	Resubmit Design DDA with DC Certificate - ML13L/R	25	25	02/11/13	26/11/13	28/10/13	21/11/13		
DDA13.03-40	Approve Design DDA - ML13L/R	35	35	27/11/13	31/12/13	22/11/13	26/12/13		
DDA14.03-10	Prepare and submit Design DDA - ML14L/R	61	55	23/09/13 A	22/11/13	23/09/13	22/11/13		
DDA14.03-20	Comment Design DDA - ML14L/R	35	35	22/11/13	27/12/13	23/11/13	27/12/13		
Airport Island									
DDA16.03-10	Prepare and submit Design DDA - ML16L/R	30	30	27/11/13	26/12/13	08/10/13	06/11/13		
DDA17.03-10	Prepare and submit Design DDA - ML17L/R	70	0	30/07/13 A	13/09/13 A	30/07/13	07/10/13		
DDA17.03-20	Comment Design DDA - ML17L/R	35	21	14/09/13 A	18/10/13	08/10/13	11/11/13		
DDA17.03-30	Resubmit Design DDA with DC Certificate - ML17L/R	25	25	19/10/13	12/11/13	12/11/13	06/12/13		
DDA17.03-40	Approve Design DDA - ML17L/R	35	35	13/11/13	17/12/13	07/12/13	10/01/14		
DDA18.03-20	Comment Design DDA - ML18L/R	35	0	11/07/13 A	28/09/13	11/07/13	14/08/13		
DDA18.03-30	Resubmit Design DDA with DC Certificate - ML18L/R	25	25	28/09/13	22/10/13	19/08/13	12/09/13		
DDA18.03-40	Approve Design DDA - ML18L/R	35	35	23/10/13	26/11/13	13/09/13	17/10/13		



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HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

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Dragages - China Harbour - VSL Joint Venture 寶嘉 - 中國港灣 - 威勝利聯營

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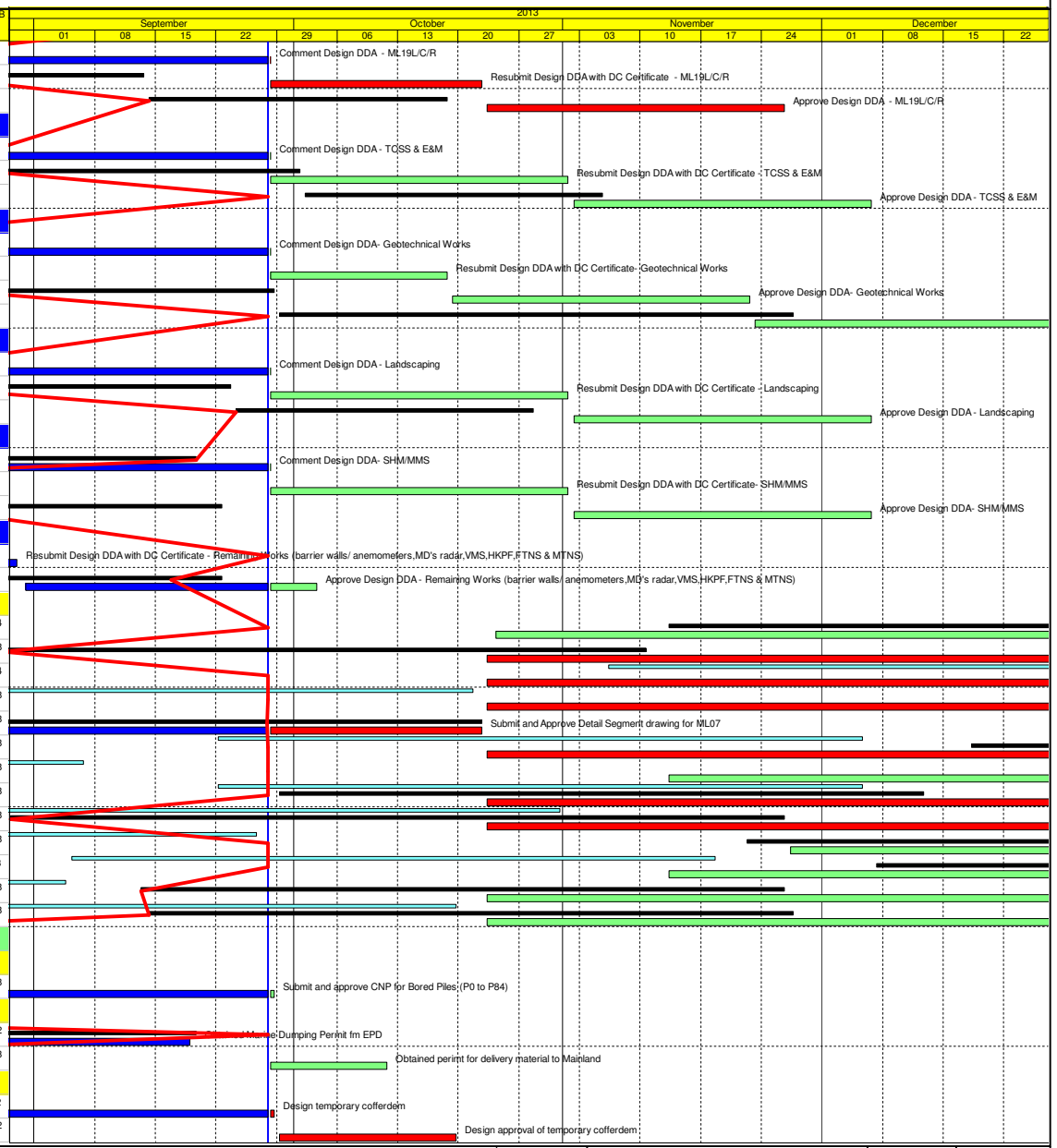
DDA19.03-20	Comment Design DDA - ML19L/C/R	35	0	09/08/13 A	28/09/13	16/07/13	19/08/13		
DDA19.03-30	Resubmit Design DDA with DC Certificate - ML19L/C/R	25	25	28/09/13	22/10/13	20/08/13	13/09/13		
DDA19.03-40	Approve Design DDA - ML19L/C/R	35	35	23/10/13	26/11/13	14/09/13	18/10/13		
TCSS and E&M									
DDAEM-20	Comment Design DDA - TCSS & E&M	35	0	02/08/13 A	28/09/13	24/07/13	27/08/13		
DDAEM-30	Resubmit Design DDA with DC Certificate - TCSS & E&M	35	35	28/09/13	01/11/13	28/08/13	01/10/13		
DDAEM-40	Approve Design DDA - TCSS & E&M	35	35	02/11/13	06/12/13	02/10/13	05/11/13		
Geotechnical Works									
DDAGEO-20	Comment Design DDA- Geotechnical Works	35	0	29/06/13 A	28/09/13	29/06/13	02/08/13		
DDAGEO-30	Resubmit Design DDA with DC Certificate- Geotechnical Works	21	21	28/09/13	18/10/13	04/08/13	24/08/13		
DDAGEO-40	Approve Design DDA- Geotechnical Works	35	35	19/10/13	22/11/13	25/08/13	28/09/13		
DDAGEO-50	Submit to GEO for Approval- Geotechnical Works	60	60	23/11/13	21/01/14	29/09/13	27/11/13		
Landscaping									
DDALA-20	Comment Design DDA - Landscaping	35	0	16/08/13 A	28/09/13	16/07/13	19/08/13		
DDALA-30	Resubmit Design DDA with DC Certificate - Landscaping	35	35	28/09/13	01/11/13	20/08/13	23/09/13		
DDALA-40	Approve Design DDA - Landscaping	35	35	02/11/13	06/12/13	24/09/13	28/10/13		
SHM/MMS									
DDASHM-20	Comment Design DDA- SHM/MMS	35	0	30/05/13 A	28/09/13	16/08/13	19/09/13		
DDASHM-30	Resubmit Design DDA with DC Certificate- SHM/MMS	35	35	28/09/13	01/11/13	15/07/13	18/08/13		
DDASHM-40	Approve Design DDA- SHM/MMS	35	35	02/11/13	06/12/13	19/08/13	22/09/13		
Remaining Works									
DDAREW-30	Resubmit Design DDA with DC Certificate - Remaining Works (barrier walls/ anemometers,MD's radar,VMS,HKPF,FTNS & MTNS)	35	0	24/08/13 A	30/08/13 A	15/07/13	18/08/13		
DDAREW-40	Approve Design DDA - Remaining Works (barrier walls/ anemometers,MD's radar,VMS,HKPF,FTNS & MTNS)	35	6	31/08/13 A	03/10/13	19/08/13	22/09/13		
Detail Segment Drawing									
SD1000	Submit and Approve Detail Segment drawing for ML01	75	75	24/10/13	06/01/14	13/11/13	26/01/14	21/03/14	03/06/14
SD1020	Submit and Approve Detail Segment drawing for ML03	75	75	23/10/13	05/01/14	28/08/13	10/11/13	22/05/13	04/08/13
SD1040	Submit and Approve Detail Segment drawing for ML05	75	75	23/10/13	05/01/14	07/05/14	20/07/14	06/11/13	19/01/14
SD1050	Submit and Approve Detail Segment drawing for ML06	75	75	23/10/13	05/01/14	22/01/14	06/04/14	08/08/13	21/10/13
SD1060	Submit and Approve Detail Segment drawing for ML07	75	25	09/08/13 A	22/10/13	09/08/13	22/10/13	10/05/13	23/07/13
SD1070	Submit and Approve Detail Segment drawing for ML08	75	75	23/10/13	05/01/14	18/12/13	02/03/14	22/09/13	05/12/13
SD1080	Submit and Approve Detail Segment drawing for ML09	75	75	13/11/13	26/01/14	26/02/14	11/05/14	24/06/13	06/09/13
SD1090	Submit and Approve Detail Segment drawing for ML10	75	75	23/10/13	05/01/14	29/09/13	12/12/13	22/09/13	05/12/13
SD1100	Submit and Approve Detail Segment drawing for ML11	90	90	23/10/13	20/01/14	29/08/13	26/11/13	18/08/13	31/10/13
SD1120	Submit and Approve Detail Segment drawing for ML13	90	90	27/11/13	24/02/14	22/11/13	19/02/14	14/07/13	26/09/13
SD1160	Submit and Approve Detail Segment drawing for ML17	75	75	13/11/13	26/01/14	07/12/13	19/02/14	05/09/13	18/11/13
SD1170	Submit and Approve Detail Segment drawing for ML18	75	75	23/10/13	05/01/14	13/09/13	26/11/13	22/06/13	04/09/13
SD1180	Submit and Approve Detail Segment drawing for ML19	75	75	23/10/13	05/01/14	14/09/13	27/11/13	06/08/13	19/10/13
Project General Submission									
Construction Noise Permit									
PGS2445	Submit and approve CNP for Bored Piles (P0 to P84)	75	1	31/10/12 A	28/09/13	26/02/13	11/05/13	31/10/12	13/01/13
Cross-boundary Disposal of Marine Sediment (if necessary)									
PGS1820	Obtained Marine Dumping Permit fm EPD	60	0	03/06/13 A	19/09/13 A	22/07/13	19/09/13	20/10/12	18/12/12
PGS1840	Obtained perimt for delivery material to Mainland	14	14	28/09/13	11/10/13	15/07/13	28/07/13	19/12/12	01/01/13
Temporary Piling Platform/Cofferdem									
PGS1670	Design temporary cofferdem	80	1	29/08/12 A	28/09/13	29/08/12	16/11/12	29/08/12	16/11/12
PGS1680	Design approval of temporary cofferdem	21	21	29/09/13	19/10/13	16/07/13	05/08/13	17/11/12	07/12/13



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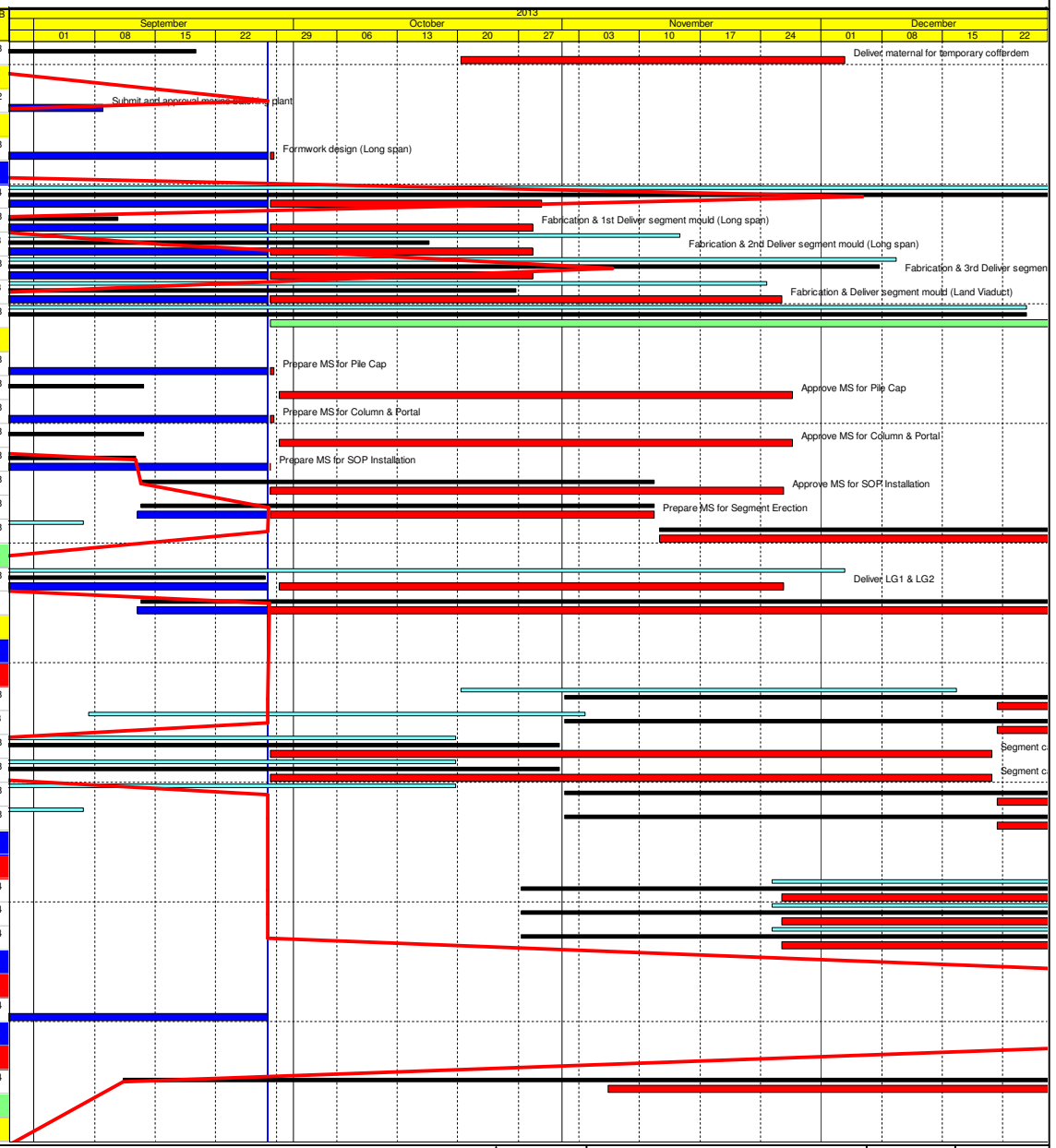
PGS1690	Deliver maternal for temporary cofferdem	45	45	20/10/13	03/12/13	06/08/13	19/09/13	08/12/12	21/01/13
Marine Concrete Batching Plant									
PGS1710	Submit and approval marine batching plant	21	0	18/12/12 A	09/09/13 A	23/02/13	15/03/13	27/11/12	17/12/12
Segment Casting Yard									
PGS2020	Formwork design (Long span)	180	1	01/10/12 A	28/09/13	01/10/12	29/03/13	01/10/12	29/03/13
Segment Moulds									
PGS2305	Fabrication & 3rd Deliver segment mould (Typical span)	175	32	29/06/13 A	29/10/13	16/07/13	06/01/14	23/08/13	13/02/14
PGS2315	Fabrication & 1st Deliver segment mould (Long span)	200	31	30/12/12 A	28/10/13	23/02/13	10/09/13	30/12/12	16/08/13
PGS2325	Fabrication & 2nd Deliver segment mould (Long span)	201	31	30/03/13 A	28/10/13	30/03/13	16/10/13	30/03/13	14/11/13
PGS2335	Fabrication & 3rd Deliver segment mould (Long End span)	146	31	18/06/13 A	28/10/13	15/07/13	07/12/13	18/06/13	09/12/13
PGS2345	Fabrication & Deliver segment mould (Land Viaduct)	91	59	28/07/13 A	26/11/13	28/07/13	26/10/13	28/07/13	24/11/13
PGS2355	Fabrication & Deliver segment mould (Turnaround)	120	120	28/09/13	25/01/14	27/08/13	24/12/13	27/08/13	24/12/13
Major Method Statement									
PGS2365	Prepare MS for Pile Cap	60	1	23/11/12 A	28/09/13	02/01/13	02/03/13	23/11/12	21/01/13
PGS2375	Approve MS for Pile Cap	60	60	29/09/13	27/11/13	16/07/13	13/09/13	22/01/13	22/03/13
PGS2385	Prepare MS for Column & Portal	60	1	01/01/13 A	28/09/13	02/02/13	02/04/13	01/01/13	01/03/13
PGS2395	Approve MS for Column & Portal	60	60	29/09/13	27/11/13	16/07/13	13/09/13	02/03/13	30/04/13
PGS2405	Prepare MS for SOP Installation	60	0	15/07/13 A	28/09/13	15/07/13	12/09/13	11/03/13	09/05/13
PGS2415	Approve MS for SOP Installation	60	60	28/09/13	26/11/13	13/09/13	11/11/13	10/05/13	08/07/13
PGS2425	Prepare MS for Segment Erection	60	45	13/09/13 A	11/11/13	13/09/13	11/11/13	10/05/13	08/07/13
PGS2435	Approve MS for Segment Erection	60	60	12/11/13	10/01/14	12/11/13	10/01/14	09/07/13	06/09/13
Procurement and Fabrication									
PGS2186	Deliver LG1 & LG2	120	59	29/04/13 A	26/11/13	31/05/13	27/09/13	06/08/13	03/12/13
PGS2485	Fabrication & Deliver Lift Frames LFA	150	135	13/09/13 A	09/02/14	13/09/13	09/02/14		
Segment Casting									
Type A, C, D Segment (Total 12 set Moulds)									
Western Water Typical Spans (P0 to P15 & P22 to P66)									
SC1390	Segment casting -P45	58	58	21/12/13	23/02/14	01/11/13	28/12/13	20/10/13	16/12/13
SC1400	Segment casting -P46	58	58	21/12/13	23/02/14	01/11/13	28/12/13	07/09/13	03/11/13
SC1410	Segment casting -P47 (Learning)	84	84	28/09/13	20/12/13	09/08/13	31/10/13	23/08/13	19/10/13
SC1420	Segment casting -P48 (Learning)	84	84	28/09/13	20/12/13	09/08/13	31/10/13	23/08/13	19/10/13
SC1430	Segment casting -P49	58	58	21/12/13	23/02/14	01/11/13	28/12/13	23/08/13	19/10/13
SC1440	Segment casting -P50	58	58	21/12/13	23/02/14	01/11/13	28/12/13	02/07/13	06/09/13
Type E Segment (Total 5 set Moulds)									
Land Viaduct (P85 to Eastemmost Abutment)									
SC2080	Segment casting -P110 (Learning)	67	67	26/11/13	08/02/14	27/10/13	01/01/14	25/11/13	30/01/14
SC2090	Segment casting -P111 (Learning)	67	67	26/11/13	08/02/14	27/10/13	01/01/14	25/11/13	30/01/14
SC2120	Segment casting -P114 (Learning)	91	91	26/11/13	04/03/14	27/10/13	25/01/14	25/11/13	02/03/14
Type B Segment (Total 1 set Mould)									
Turnaround									
SC2140	Segment casting -P52N/S	60	60	09/08/13 A	23/04/14	30/04/14	28/06/14	19/06/14	28/07/14
Type CH Segment (Total 12 set Moulds)									
Long Spans (P16 to P21 & P67 to P84)									
SC1650	Segment casting -P20 (Learning)	168	168	06/11/13	29/04/14	11/09/13	04/03/14	15/01/14	03/05/14
Viaduct between HKSAR Boundary and Landing Point on Airport Island									
ML01L/R 75mx8 - Stage 1 of Works									



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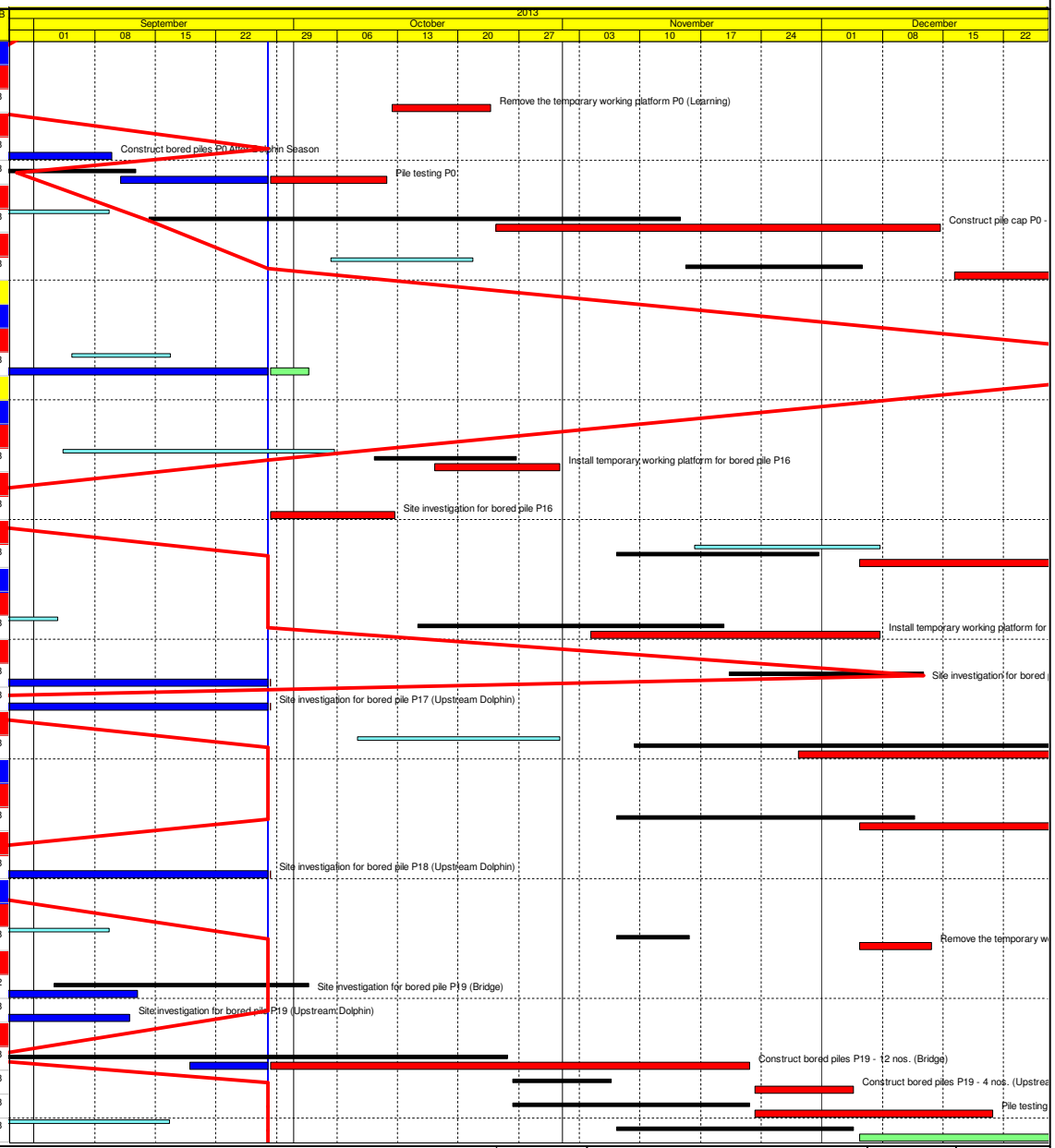
Pier P0L/R									
Temporary Works									
WW1020	Remove the temporary working platform P0 (Learning)	8	8	12/10/13	23/10/13	17/08/13	27/08/13	29/04/13	08/05/13
Foundation - Bored Pile									
WW1030	Construct bored piles P0 After Dolphin Season	28	0	04/07/13 A	10/09/13 A	04/07/13	12/08/13	11/03/13	27/04/13
WW1040	Pile testing P0	28	14	11/09/13 A	11/10/13	16/08/13	12/09/13	28/04/13	25/05/13
Pile Cap Construction									
WW1050	Construct pile cap P0 - 2 nos. (Learning)	45	45	24/10/13	14/12/13	14/09/13	14/11/13	30/07/13	09/09/13
Column Construction									
WW1060	Construct column P0 - 2 nos. (in-situ)	18	18	16/12/13	08/01/14	15/11/13	05/12/13	05/10/13	21/10/13
ML02L/R 75mx8 - Stage 4 of Works									
Pier P15L/R									
Site Investigation									
WW2210	Site investigation for bored pile P15	9	3	12/03/13 A	02/10/13	14/01/14	23/01/14	05/09/13	16/09/13
ML03L/R 109.661m+150mx3+109.661m Navigation Channel - Stage 4 of Works									
Pier P16L/R (M.J.)									
Temporary Works									
NC1000	Install temporary working platform for bored pile P16	12	12	17/10/13	31/10/13	10/10/13	26/10/13	04/09/13	05/10/13
Site Investigation									
NC1010	Site investigation for bored pile P16	10	10	28/09/13	12/10/13	07/08/13	20/08/13	27/02/13	07/03/13
Foundation - Bored Pile									
NC1040	Construct bored piles P16 - 6 nos..	21	21	05/12/13	31/12/13	07/11/13	30/11/13	16/11/13	07/12/13
Pier P17L/R									
Temporary Works									
NC1120	Install temporary working platform for bored pile P17	30	30	04/11/13	07/12/13	15/10/13	19/11/13	24/07/13	03/09/13
Site Investigation									
NC1130	Site investigation for bored pile P17 (Bridge)	20	0	28/03/13 A	28/09/13	20/11/13	12/12/13	31/01/13	14/02/13
NC1140	Site investigation for bored pile P17 (Upstream Dolphin)	8	0	27/07/13 A	28/09/13	27/07/13	06/08/13	15/02/13	26/02/13
Foundation - Bored Pile									
NC1160	Construct bored piles P17 - 12 nos. (Bridge)	52	52	28/11/13	30/01/14	09/11/13	11/01/14	08/10/13	31/10/13
Pier P18L/R									
Temporary Works									
NC1240	Install temporary working platform for bored pile P18	30	30	05/12/13	11/01/14	07/11/13	11/12/13	11/06/13	23/07/13
Site Investigation									
NC1260	Site investigation for bored pile P18 (Upstream Dolphin)	8	0	24/07/13 A	28/09/13	24/07/13	03/08/13	19/01/13	30/01/13
Pier P19L/R									
Temporary Works									
NC1390	Remove the temporary working platform P19	8	8	05/12/13	13/12/13	07/11/13	15/11/13	20/08/13	09/09/13
Site Investigation									
NC1370	Site investigation for bored pile P19 (Bridge)	20	0	12/03/13 A	13/09/13 A	03/09/13	02/10/13	12/12/12	22/12/12
NC1380	Site investigation for bored pile P19 (Upstream Dolphin)	8	0	15/08/13 A	12/09/13 A	03/08/13	13/08/13	24/12/12	07/01/13
Foundation - Bored Pile									
NC1400	Construct bored piles P19 - 12 nos. (Bridge)	48	43	19/09/13 A	22/11/13	17/08/13	25/10/13	02/07/13	29/07/13
NC1410	Construct bored piles P19 - 4 nos. (Upstream Dolphin)	10	10	23/11/13	04/12/13	26/10/13	06/11/13	30/07/13	19/08/13
NC1420	Pile testing P19 (Bridge)	28	28	23/11/13	20/12/13	26/10/13	22/11/13	30/07/13	26/08/13
NC1430	Pile testing P19 (Upstream Dolphin)	28	28	05/12/13	01/01/14	07/11/13	04/12/13	20/08/13	16/09/13



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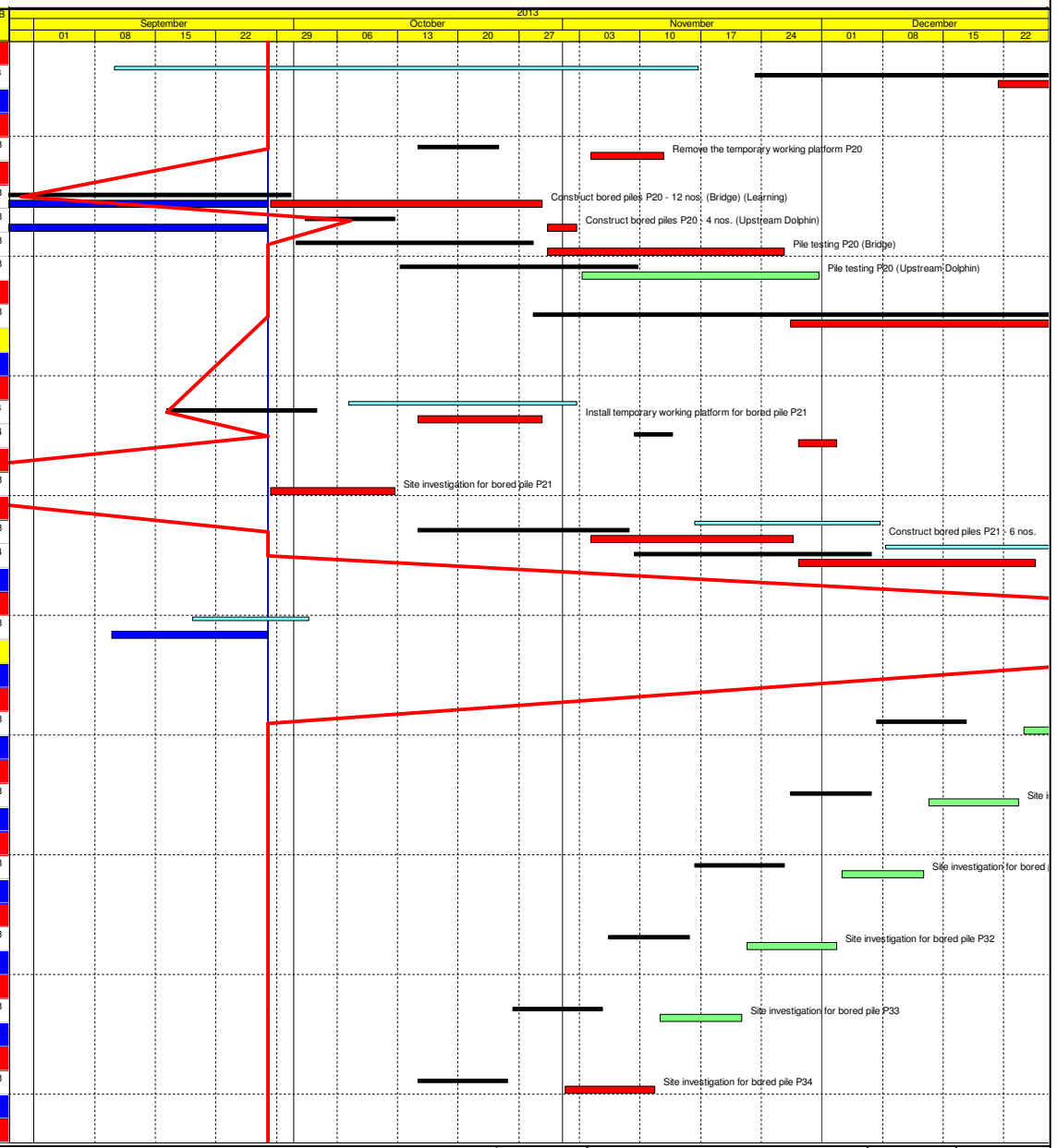
Pile Cap Construction									
NC1440	Construct pile cap P19 - 2 nos. (Learning)	100	100	21/12/13	29/04/14	23/11/13	26/03/14	10/09/13	16/11/13
Pier P20L/R									
Temporary Works									
NC1510	Remove the temporary working platform P20	8	8	04/11/13	12/11/13	15/10/13	24/10/13	06/04/13	30/04/13
Foundation - Bored Pile									
NC1520	Construct bored piles P20 - 12 nos. (Bridge) (Learning)	51	22	20/07/13 A	29/10/13	20/07/13	30/09/13	25/02/13	16/03/13
NC1530	Construct bored piles P20 - 4 nos. (Upstream Dolphin)	8	4	29/08/13 A	02/11/13	02/10/13	12/10/13	18/03/13	05/04/13
NC1540	Pile testing P20 (Bridge)	28	28	30/10/13	26/11/13	01/10/13	28/10/13	17/03/13	13/04/13
NC1550	Pile testing P20 (Upstream Dolphin)	28	28	03/11/13	30/11/13	13/10/13	09/11/13	06/04/13	03/05/13
Pile Cap Construction									
NC1560	Construct pile cap P20 - 2 nos. (Learning)	100	100	27/11/13	29/03/14	28/10/13	28/02/14	02/05/13	30/07/13
ML04L/R 74.5mx8 - Stage 4 of Works									
Pier P21L/R (M.J.)									
Temporary Works									
WW8570	Install temporary working platform for bored pile P21	12	12	15/10/13	29/10/13	16/09/13	03/10/13	07/10/13	02/11/13
WW8600	Remove the temporary working platform P21	4	4	28/11/13	02/12/13	09/11/13	13/11/13	07/01/14	17/01/14
Site Investigation									
WW8580	Site investigation for bored pile P21	10	10	28/09/13	12/10/13	05/08/13	17/08/13	18/03/13	26/03/13
Foundation - Bored Pile									
WW8610	Construct bored piles P21 - 6 nos.	21	21	04/11/13	27/11/13	15/10/13	08/11/13	16/11/13	07/12/13
WW8630	Pile testing P21 (Bridge)	28	28	28/11/13	25/12/13	09/11/13	06/12/13	08/12/13	04/01/14
Pier P22L/R									
Site Investigation									
WW5010	Site investigation for bored pile P22	9	7	10/09/13 A	21/03/14	26/02/14	07/03/14	19/09/13	02/10/13
ML05L/R 74.5mx8 - Stage 4 of Works									
Pier P29L/R (M.J.)									
Site Investigation									
WW5570	Site investigation for bored pile P29	9	9	24/12/13	06/01/14	07/12/13	17/12/13	03/07/13	13/07/13
Pier P30L/R									
Site Investigation									
WW5650	Site investigation for bored pile P30	9	9	13/12/13	23/12/13	27/11/13	06/12/13	21/06/13	02/07/13
Pier P31L/R									
Site Investigation									
WW5730	Site investigation for bored pile P31	9	9	03/12/13	12/12/13	16/11/13	26/11/13	10/06/13	20/06/13
Pier P32L/R									
Site Investigation									
WW5810	Site investigation for bored pile P32	9	9	22/11/13	02/12/13	06/11/13	15/11/13	30/05/13	08/06/13
Pier P33L/R									
Site Investigation									
WW5890	Site investigation for bored pile P33	9	9	12/11/13	21/11/13	26/10/13	05/11/13	20/05/13	29/05/13
Pier P34L/R									
Site Investigation									
WW5970	Site investigation for bored pile P34	9	9	01/11/13	11/11/13	15/10/13	25/10/13	08/05/13	18/05/13
Pier P35L/R									
Temporary Works									



DWP_01a Programme
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DWP_00B Programme

HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

Date	Revision	Checked	Approved
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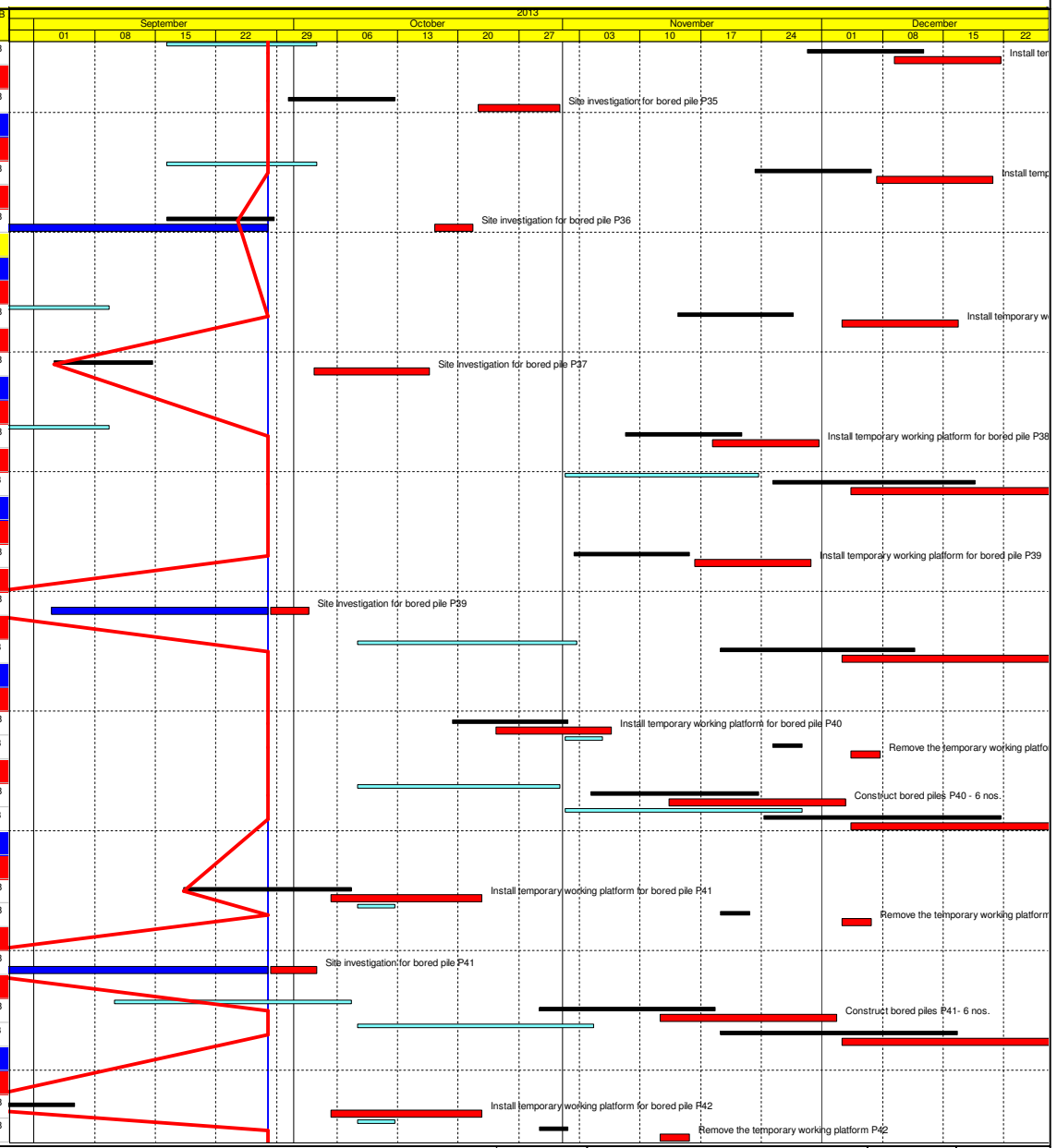
Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
WW6040	Install temporary working platform for bored pile P35	12	12	09/12/13	21/12/13	29/11/13	12/12/13	16/09/13	03/10/13
Site Investigation									
WW6050	Site investigation for bored pile P35	9	9	22/10/13	31/10/13	30/09/13	12/10/13	27/04/13	07/05/13
Pier P36L/R									
Temporary Works									
WW6120	Install temporary working platform for bored pile P36	12	12	07/12/13	20/12/13	23/11/13	06/12/13	16/09/13	03/10/13
Site Investigation									
WW6130	Site investigation for bored pile P36	9	3	23/08/13 A	21/10/13	16/09/13	28/09/13	18/04/13	26/04/13
ML06L/R 74.5mx8 - Stage 4 of Works									
Pier P37L/R (M.J.)									
Temporary Works									
WW6200	Install temporary working platform for bored pile P37	12	12	03/12/13	16/12/13	14/11/13	27/11/13	24/08/13	09/09/13
Site Investigation									
WW6210	Site investigation for bored pile P37	9	9	03/10/13	16/10/13	03/09/13	14/09/13	08/04/13	16/04/13
Pier 38L/R									
Temporary Works									
WW6280	Install temporary working platform for bored pile P38	12	12	18/11/13	30/11/13	08/11/13	21/11/13	24/08/13	09/09/13
Foundation - Bored Pile									
WW6310	Construct bored piles P38 - 6 nos.	21	21	04/12/13	30/12/13	25/11/13	18/12/13	01/11/13	23/11/13
Pier 39L/R									
Temporary Works									
WW6360	Install temporary working platform for bored pile P39	12	12	16/11/13	29/11/13	02/11/13	15/11/13	31/07/13	15/08/13
Site Investigation									
WW6370	Site investigation for bored pile P39	9	3	03/09/13 A	02/10/13	08/08/13	20/08/13	15/03/13	23/03/13
Foundation - Bored Pile									
WW6390	Construct bored piles P39 - 6 nos.	20	20	03/12/13	27/12/13	19/11/13	11/12/13	08/10/13	02/11/13
Pier 40L/R									
Temporary Works									
WW6440	Install temporary working platform for bored pile P40	12	12	24/10/13	06/11/13	19/10/13	01/11/13	31/07/13	15/08/13
WW6460	Remove the temporary working platform P40	4	4	04/12/13	07/12/13	25/11/13	28/11/13	01/11/13	05/11/13
Foundation - Bored Pile									
WW6470	Construct bored piles P40 - 6 nos.	18	18	13/11/13	03/12/13	04/11/13	23/11/13	08/10/13	31/10/13
WW6480	Pile testing P40	28	28	04/12/13	31/12/13	24/11/13	21/12/13	01/11/13	28/11/13
Pier 41L/R									
Temporary Works									
WW6520	Install temporary working platform for bored pile P41	12	12	05/10/13	22/10/13	18/09/13	07/10/13	23/04/13	07/05/13
WW6540	Remove the temporary working platform P41	4	4	03/12/13	06/12/13	19/11/13	22/11/13	08/10/13	12/10/13
Site Investigation									
WW6530	Site investigation for bored pile P41	9	4	20/07/13 A	03/10/13	08/08/13	20/08/13	25/02/13	05/03/13
Foundation - Bored Pile									
WW6550	Construct bored piles P41- 6 nos.	18	18	12/11/13	02/12/13	29/10/13	18/11/13	10/09/13	07/10/13
WW6560	Pile testing P41	28	28	03/12/13	30/12/13	19/11/13	16/12/13	08/10/13	04/11/13
Pier 42L/R									
Temporary Works									
WW6600	Install temporary working platform for bored pile P42	12	12	05/10/13	22/10/13	21/08/13	05/09/13	23/04/13	07/05/13
WW6620	Remove the temporary working platform P42	4	4	12/11/13	15/11/13	29/10/13	01/11/13	08/10/13	12/10/13



DWP_01a Programme
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HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

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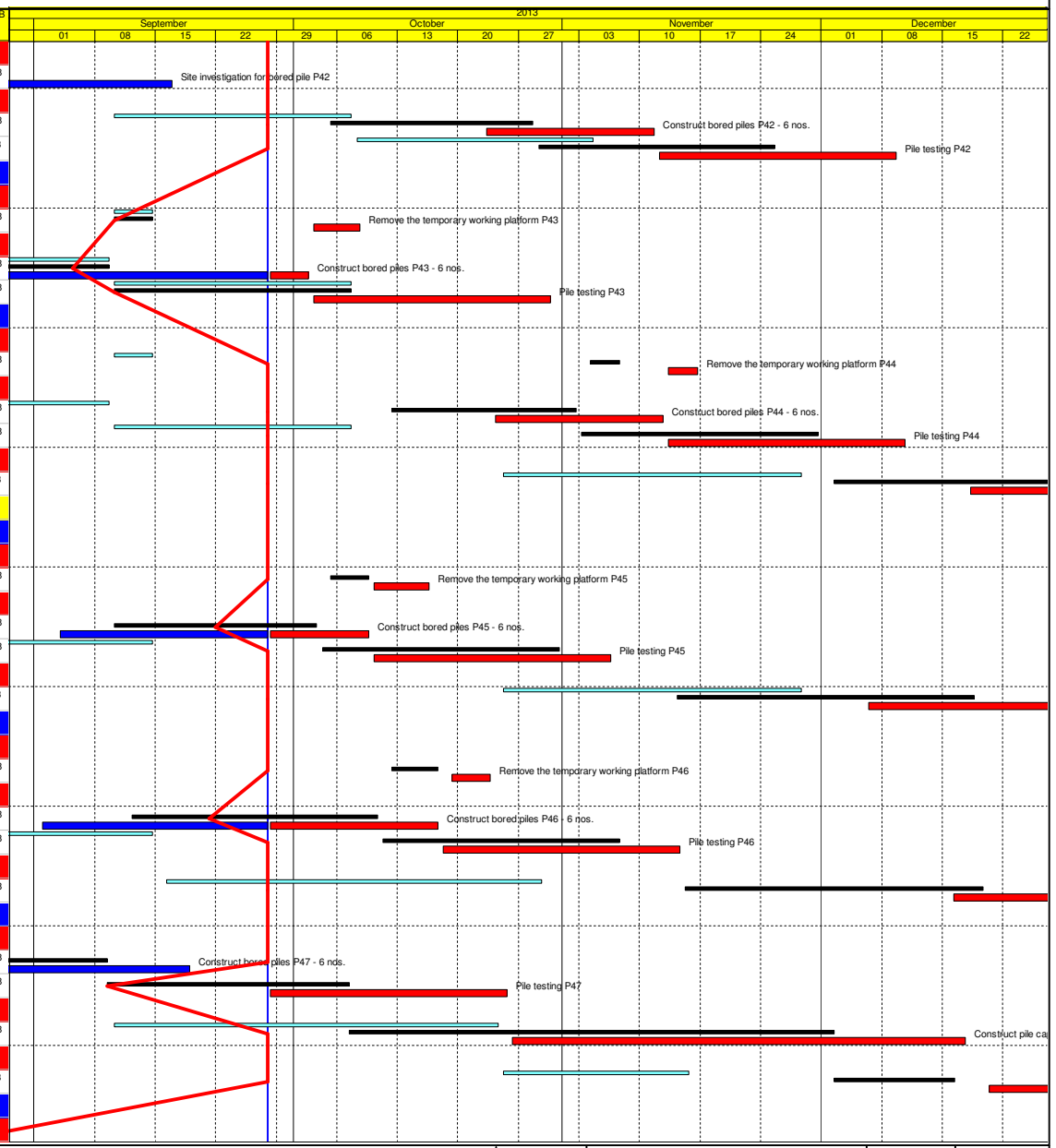
Dragages - China Harbour - VSL Joint Venture 寶嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
Site Investigation									
WW6610	Site investigation for bored pile P42	9	0	27/07/13 A	17/09/13 A	27/07/13	07/08/13	15/02/13	23/02/13
Foundation - Bored Pile									
WW6630	Construct bored piles P42 - 6 nos.	17	17	23/10/13	11/11/13	05/10/13	28/10/13	10/09/13	07/10/13
WW6640	Pile testing P42	28	28	12/11/13	09/12/13	29/10/13	25/11/13	08/10/13	04/11/13
Pier 43L/R									
Temporary Works									
WW6700	Remove the temporary working platform P43	4	4	03/10/13	08/10/13	10/09/13	14/09/13	10/09/13	14/09/13
Foundation - Bored Pile									
WW6710	Construct bored piles P43 - 6 nos.	18	3	15/08/13 A	02/10/13	15/08/13	09/09/13	19/08/13	09/09/13
WW6720	Pile testing P43	28	28	03/10/13	30/10/13	10/09/13	07/10/13	10/09/13	07/10/13
Pier 44L/R									
Temporary Works									
WW6780	Remove the temporary working platform P44	4	4	13/11/13	16/11/13	04/11/13	07/11/13	10/09/13	14/09/13
Foundation - Bored Pile									
WW6790	Construct bored piles P44 - 6 nos.	17	17	24/10/13	12/11/13	12/10/13	02/11/13	19/08/13	09/09/13
WW6800	Pile testing P44	28	28	13/11/13	10/12/13	03/11/13	30/11/13	10/09/13	07/10/13
Pile Cap Construction									
WW6810	Construct pile cap P44 - 2 nos.	30	30	18/12/13	24/01/14	02/12/13	09/01/14	25/10/13	28/11/13
ML07L/R 73.396mx8 - Stage 4 of Works									
Pier P45L/R (M.J.)									
Temporary Works									
WW6860	Remove the temporary working platform P45	4	4	10/10/13	16/10/13	05/10/13	09/10/13	19/08/13	22/08/13
Foundation - Bored Pile									
WW6870	Construct bored piles P45 - 6 nos.	16	8	04/09/13 A	09/10/13	10/09/13	03/10/13	25/07/13	17/08/13
WW6880	Pile testing P45	28	28	10/10/13	06/11/13	04/10/13	31/10/13	18/08/13	14/09/13
Pile Cap Construction									
WW6890	Construct pile cap P45 - 2 nos.	30	30	06/12/13	14/01/14	14/11/13	18/12/13	25/10/13	28/11/13
Pier P46L/R									
Temporary Works									
WW6940	Remove the temporary working platform P46	4	4	19/10/13	23/10/13	12/10/13	17/10/13	19/08/13	22/08/13
Foundation - Bored Pile									
WW6950	Construct bored piles P46 - 6 nos.	19	13	02/09/13 A	17/10/13	12/09/13	10/10/13	25/07/13	17/08/13
WW6960	Pile testing P46	28	28	18/10/13	14/11/13	11/10/13	07/11/13	18/08/13	14/09/13
Pile Cap Construction									
WW6970	Construct pile cap P46 - 2 nos.	30	30	16/12/13	22/01/14	15/11/13	19/12/13	16/09/13	29/10/13
Pier P47L/R									
Foundation - Bored Pile									
WW7030	Construct bored piles P47 - 6 nos.	23	0	21/08/13 A	19/09/13 A	07/08/13	09/09/13	02/07/13	24/07/13
WW7040	Pile testing P47	28	28	28/09/13	25/10/13	09/09/13	07/10/13	25/07/13	21/08/13
Pile Cap Construction									
WW7050	Construct pile cap P47 - 2 nos. (Learning)	45	45	26/10/13	17/12/13	07/10/13	02/12/13	10/09/13	24/10/13
Column Construction									
WW7060	Construct column P47 - 2 nos. (in-situ section)	12	12	20/12/13	07/01/14	02/12/13	16/12/13	25/10/13	15/11/13
Pier P48L/R									
Temporary Works									



DWP_01a Programme
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HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

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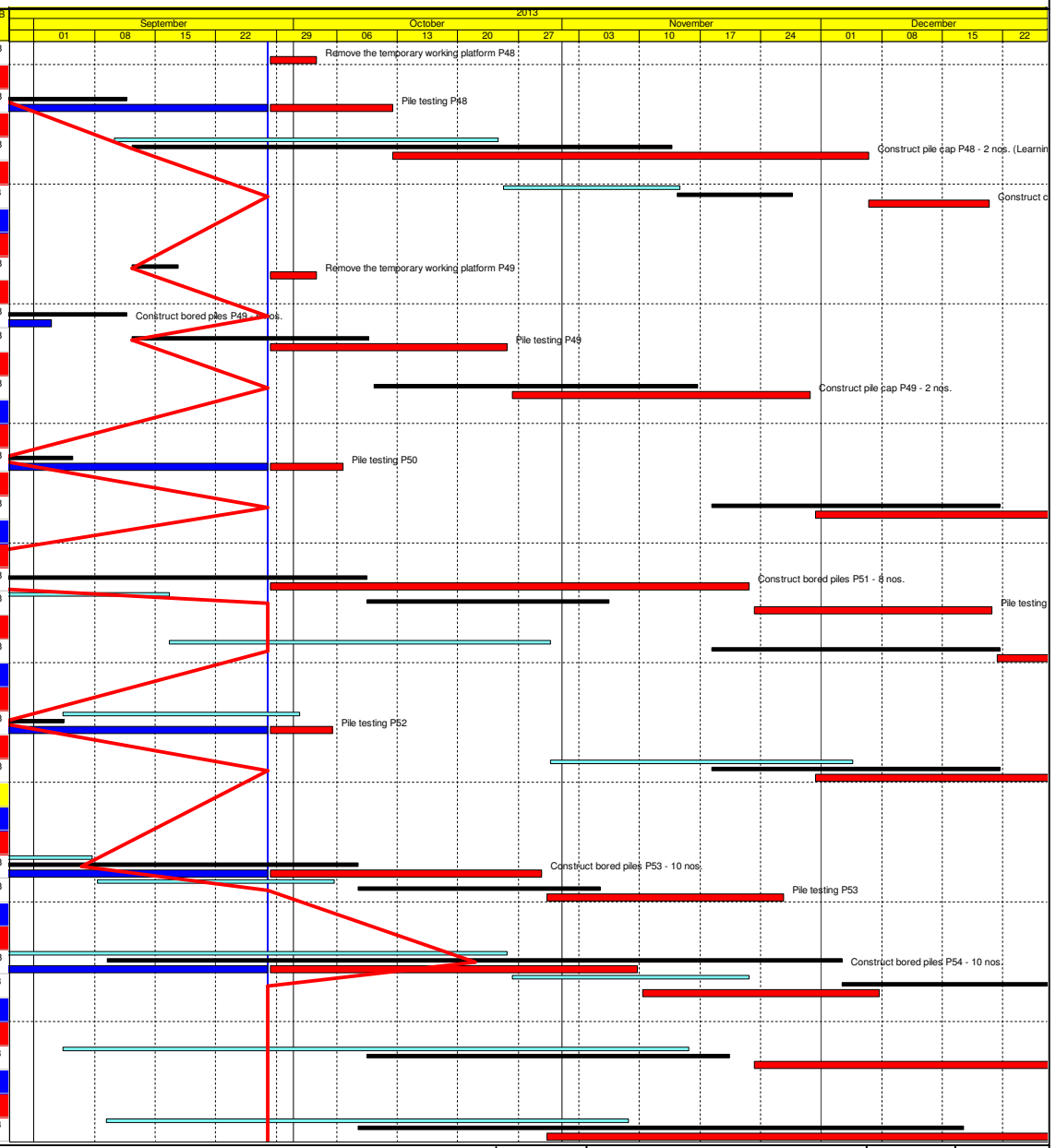
Dragages - China Harbour - VSL Joint Venture 寶嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
WW7100	Remove the temporary working platform P48	4	4	28/09/13	03/10/13	15/08/13	20/08/13	25/07/13	30/07/13
Foundation - Bored Pile									
WW7120	Pile testing P48	28	14	15/08/13 A	12/10/13	15/08/13	11/09/13	25/07/13	21/08/13
Pile Cap Construction									
WW7130	Construct pile cap P48 - 2 nos. (Learning)	45	45	12/10/13	06/12/13	12/09/13	13/11/13	10/09/13	24/10/13
Column Construction									
WW7140	Construct column P48 - 2 nos. (in-situ section) (Learning)	12	12	06/12/13	20/12/13	14/11/13	27/11/13	25/10/13	14/11/13
Pier P49L/R									
Temporary Works									
WW7180	Remove the temporary working platform P49	4	4	28/09/13	03/10/13	12/09/13	17/09/13	25/02/13	05/03/13
Foundation - Bored Pile									
WW7190	Construct bored piles P49 - 6 nos.	30	0	03/08/13 A	03/09/13 A	01/08/13	11/09/13	18/01/13	23/02/13
WW7200	Pile testing P49	28	28	28/09/13	25/10/13	12/09/13	09/10/13	24/02/13	23/03/13
Pile Cap Construction									
WW7210	Construct pile cap P49 - 2 nos.	30	30	26/10/13	29/11/13	10/10/13	16/11/13	28/05/13	29/07/13
Pier P50L/R									
Foundation - Bored Pile									
WW7280	Pile testing P50	29	9	07/08/13 A	06/10/13	07/08/13	05/09/13	24/02/13	24/03/13
Pile Cap Construction									
WW7290	Construct pile cap P50 - 2 nos.	30	30	30/11/13	07/01/14	18/11/13	21/12/13	25/03/13	27/05/13
Pier P51L/R									
Foundation - Bored Pile									
WW7340	Construct bored piles P51 - 8 nos.	43	43	28/09/13	22/11/13	07/08/13	09/10/13	02/07/13	19/08/13
WW7350	Pile testing P51	28	28	23/11/13	20/12/13	09/10/13	06/11/13	20/08/13	16/09/13
Pile Cap Construction									
WW7360	Construct pile cap P51 - 2 nos.	30	30	21/12/13	28/01/14	18/11/13	21/12/13	16/09/13	30/10/13
Pier P52L/R									
Foundation - Bored Pile									
WW7420	Pile testing P52	28	8	07/08/13 A	05/10/13	07/08/13	04/09/13	04/09/13	01/10/13
Pile Cap Construction									
WW7430	Construct pile cap P52 - 2 nos.	30	30	30/11/13	07/01/14	18/11/13	21/12/13	30/10/13	04/12/13
ML08L/R 70mx6 - Stage 4 of Works									
Pier P53L/R (M.J.)									
Foundation - Bored Pile									
WW7480	Construct bored piles P53 - 10 nos.	44	22	11/07/13 A	29/10/13	05/08/13	08/10/13	08/07/13	07/09/13
WW7490	Pile testing P53	28	28	30/10/13	26/11/13	08/10/13	05/11/13	08/09/13	05/10/13
Pier P54L/R									
Foundation - Bored Pile									
WW7560	Construct bored piles P54 - 10 nos.	64	32	05/08/13 A	09/11/13	09/09/13	03/12/13	20/08/13	25/10/13
WW7570	Pile testing P54	28	28	10/11/13	07/12/13	03/12/13	31/12/13	26/10/13	22/11/13
Pier P55L/R									
Foundation - Bored Pile									
WW7640	Construct bored piles P55 - 10 nos.	33	33	23/11/13	03/01/14	09/10/13	20/11/13	04/09/13	15/11/13
Pier P56L/R									
Foundation - Bored Pile									
WW7720	Construct bored piles P56 - 12 nos.	57	57	30/10/13	07/01/14	08/10/13	17/12/13	09/09/13	08/11/13



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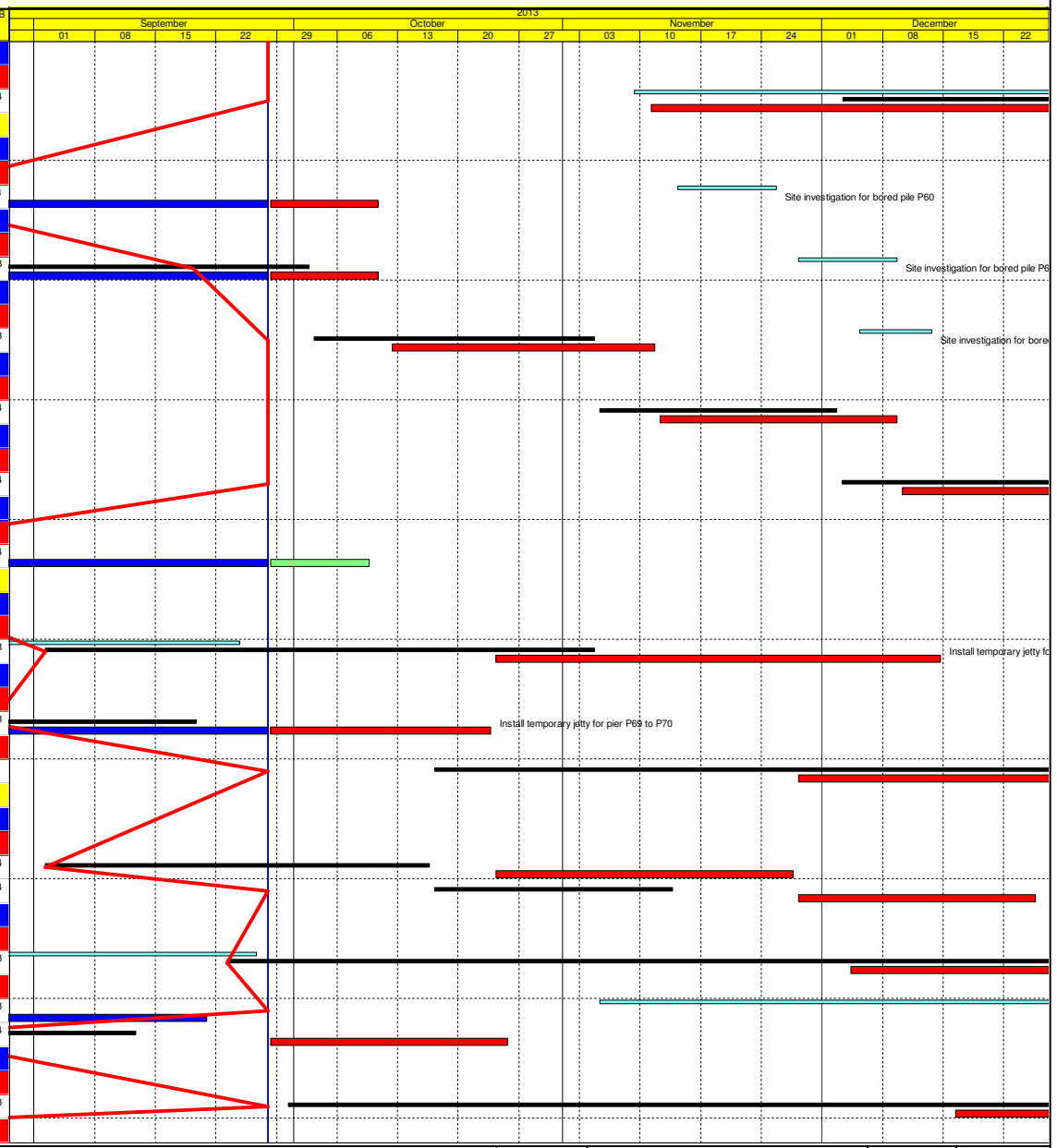
Pier P58L/R									
Foundation - Bored Pile									
WW7880	Construct bored piles P58 - 10 nos.	45	45	11/11/13	04/01/14	03/12/13	28/01/14	09/11/13	04/01/14
ML09L/R 73.396Mx8 - Stage 4 of Works									
Pier P60L/R									
Site Investigation									
WW8010	Site investigation for bored pile P60	24	9	05/08/13 A	10/10/13	25/07/13	27/08/13	14/11/13	25/11/13
Pier P61L/R									
Site Investigation									
WW8090	Site investigation for bored pile P61	24	9	19/08/13 A	10/10/13	28/08/13	02/10/13	28/11/13	09/12/13
Pier P62L/R									
Site Investigation									
WW8160	Site investigation for bored pile P62	24	24	12/10/13	11/11/13	03/10/13	04/11/13	05/12/13	13/12/13
Pier P63L/R									
Site Investigation									
WW8260	Site investigation for bored pile P63	24	24	12/11/13	09/12/13	05/11/13	02/12/13	08/01/14	16/01/14
Pier P64L/R									
Site Investigation									
WW8340	Site investigation for bored pile P64	24	24	10/12/13	09/01/14	03/12/13	02/01/14	24/01/14	05/02/14
Pier P66L/R									
Site Investigation									
WW8500	Site investigation for bored pile P66	24	8	13/07/13 A	09/10/13	15/07/13	15/08/13	26/02/14	06/03/14
ML10L/R 115m+180m+115m - Stage 4 of Works									
Pier P68L/R									
Temporary Works									
AC1010	Install temporary jetty for pier P68	45	45	24/10/13	14/12/13	02/09/13	04/11/13	02/07/13	24/09/13
Pier P69L/R									
Temporary Works									
AC1120	Install temporary jetty for pier P69 to P70	60	17	28/06/13 A	23/10/13	28/06/13	19/09/13	03/05/13	24/07/13
Foundation - Bored Pile									
AC2480	Construct bored piles P69 - 12 nos.	84	84	28/11/13	12/03/14	17/10/13	27/01/14		
ML11L/R 109m+165mx2+109m - Stage 4 of Works									
Pier P70L/R (M.J.)									
Foundation - Bored Pile									
AC1190	Construct bored piles P70 - 6 nos.	30	30	24/10/13	27/11/13	02/09/13	16/10/13	31/12/13	25/01/14
AC1200	Pile testing P70	28	28	28/11/13	25/12/13	17/10/13	13/11/13	26/01/14	01/03/14
Pier P71L/R									
Temporary Works									
AC1240	Install cofferdem for pile cap construction - P71 - 2 nos.	80	80	04/12/13	13/03/14	23/09/13	03/01/14	25/07/13	26/09/13
Foundation - Bored Pile									
AC1270	Construct bored piles P71 - 8 nos.	70	0	02/05/13 A	21/09/13 A	02/05/13	06/08/13	05/11/13	30/12/13
AC1280	Pile testing P71	28	28	28/09/13	25/10/13	16/08/13	12/09/13	31/12/13	27/01/14
Pier P72L/R									
Temporary Works									
AC1320	Install cofferdem for pile cap construction - P72 - 2 nos.	80	80	16/12/13	26/03/14	30/09/13	09/01/14	30/04/13	17/07/13
Foundation - Bored Pile									



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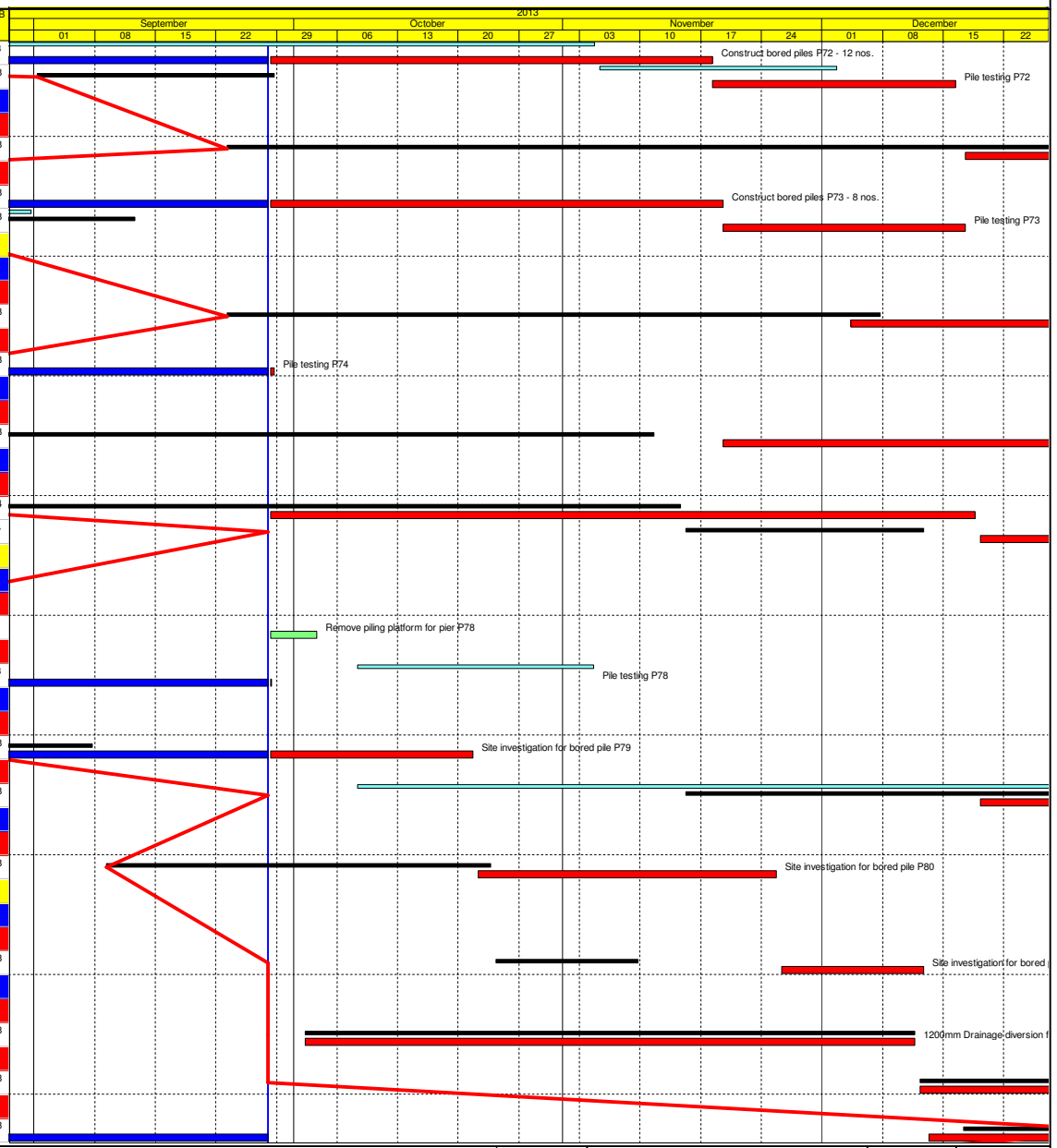
AC1360	Construct bored piles P72 - 12 nos.	51	38	02/05/13 A	18/11/13	02/05/13	10/07/13	05/08/13	04/11/13
AC1370	Pile testing P72	28	28	18/11/13	16/12/13	01/09/13	28/09/13	05/11/13	02/12/13
Pier P73L/R									
Temporary Works									
AC1410	Install cofferdem for pile cap construction - P73 - 2 nos.	80	80	17/12/13	27/03/14	23/09/13	03/01/14	20/03/13	20/05/13
Foundation - Bored Pile									
AC1450	Construct bored piles P73 - 8 nos.	64	40	02/05/13 A	19/11/13	02/05/13	29/07/13	28/05/13	03/08/13
AC1460	Pile testing P73	28	28	19/11/13	17/12/13	15/08/13	12/09/13	04/08/13	31/08/13
ML12L/R 109m+165mx2+109m - Stage 4 of Works									
Pier P74L/R (M.J.)									
Temporary Works									
AC1500	Install cofferdem for pile cap construction - P74 - 2 nos.	60	60	04/12/13	18/02/14	23/09/13	07/12/13	09/02/13	26/03/13
Foundation - Bored Pile									
AC1550	Pile testing P74	28	1	26/07/13 A	28/09/13	26/07/13	22/08/13	28/05/13	24/06/13
Pier P76L/R									
Foundation - Bored Pile									
AC1720	Construct bored piles P76 - 8 nos.	62	62	19/11/13	06/02/14	15/08/13	11/11/13	08/04/13	14/06/13
Pier P77L/R									
Foundation - Bored Pile									
AC1800	Construct bored piles P77 - 12 nos.	65	65	28/09/13	18/12/13	17/08/13	14/11/13	28/12/13	14/03/14
AC1810	Pile testing P77	28	28	19/12/13	15/01/14	15/11/13	12/12/13	15/03/14	11/04/14
ML13L/R 115m+180m+115m - Stage 4 of Works									
Pier P78L/R (M.J.)									
Temporary Works									
AC1849	Remove piling platform for pier P78	4	4	28/09/13	03/10/13	01/08/13	06/08/13		
Foundation - Bored Pile									
AC1900	Pile testing P78	28	0	01/08/13 A	28/09/13	01/08/13	28/08/13	08/10/13	04/11/13
Pier P79L/R									
Site Investigation									
AC1950	Site investigation for bored pile P79	30	15	27/08/13 A	21/10/13	29/07/13	07/09/13	22/05/13	29/06/13
Foundation - Bored Pile									
AC1970	Construct bored piles P79 - 12 nos.	72	72	19/12/13	19/03/14	15/11/13	13/02/14	08/10/13	27/12/13
Pier P80L/R									
Site Investigation									
AC2030	Site investigation for bored pile P80	30	30	22/10/13	25/11/13	09/09/13	23/10/13	23/01/13	01/03/13
ML14L/R 115m+180m+100.561m - Stage 4 of Works									
Pier P81L/R (M.J.)									
Site Investigation									
AC2110	Site investigation for bored pile P81	15	15	26/11/13	12/12/13	24/10/13	09/11/13	29/04/13	18/05/13
Pier P82L/R									
Utilities Diversion									
AC2460	1200mm Drainage diversion for P82	60	60	02/10/13*	11/12/13	02/10/13	11/12/13	08/12/12	07/02/13
Temporary Works									
AC2190	Remove existing seawall for pier P82	60	60	12/12/13	26/02/14	12/12/13	26/02/14	08/02/13	15/04/13
Site Investigation									
AC2210	Site investigation for bored pile P82	30	15	21/01/13 A	02/01/14	17/12/13	23/01/14	19/03/13	27/04/13



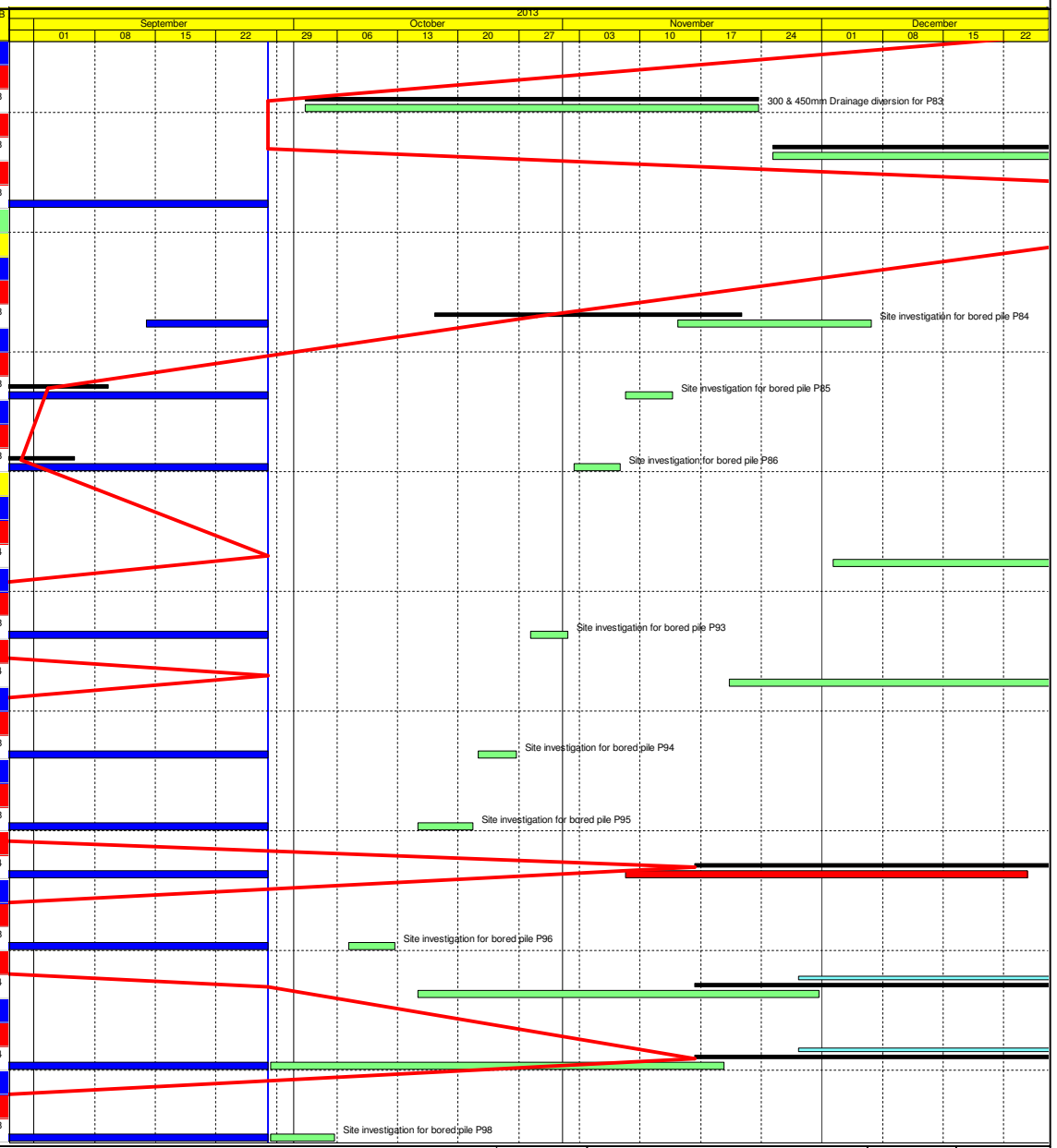
DWP_01a Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone
DWP_00B Programme

HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

Date	Revision	Checked	Approved
27/09/13	1309 rolling	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
Pier P83L/R									
Utilities Diversion									
AC2470	300 & 450mm Drainage diversion for P83	45	45	02/10/13	23/11/13	02/10/13	23/11/13	08/12/12	01/02/13
Temporary Works									
AC2290	Remove existing seawall for pier P83	45	45	25/11/13	18/01/14	25/11/13	18/01/14	16/04/13	14/06/13
Site Investigation									
AC2310	Site investigation for bored pile P83	30	18	30/01/13 A	23/01/14	24/01/14	03/03/14	15/06/13	27/07/13
Viaduct between Landing Point on Airport Island and Scenic Hill									
ML15L/R 43m+65mx6+37m - Stage 5 of Works									
Pier P84L/R (M.J.)									
Site Investigation									
AI1010	Site investigation for bored pile P84	30	20	14/09/13 A	06/12/13	17/10/13	21/11/13	29/07/13	17/08/13
Pier P85L/R									
Site Investigation									
AI1100	Site investigation for bored pile P85	10	5	08/05/13 A	13/11/13	26/08/13	09/09/13	13/07/13	26/07/13
Pier P86L/R									
Site Investigation									
AI1170	Site investigation for bored pile P86	10	5	15/05/13 A	07/11/13	24/08/13	05/09/13	27/06/13	12/07/13
MI16L/R 37m+65mx5+43m - Stage 5 of Works									
Pier P92L/R (M.J.)									
Temporary Works									
AI1580	Construct temporary piling platform for bored pile P92	40	40	02/12/13	20/01/14	06/01/14	24/02/14	17/01/14	07/03/14
Pier P93L/R									
Site Investigation									
AI1660	Site investigation for bored pile P93	10	5	02/04/13 A	01/11/13	29/06/13	15/07/13	25/03/13	09/04/13
Temporary Works									
AI1650	Construct temporary piling platform for bored pile P93	40	40	20/11/13	08/01/14	06/01/14	24/02/14	17/01/14	07/03/14
Pier P94L/R									
Site Investigation									
AI1730	Site investigation for bored pile P94	10	5	23/03/13 A	26/10/13	15/06/13	29/06/13	13/03/13	23/03/13
Pier P95L/R									
Site Investigation									
AI1800	Site investigation for bored pile P95	10	5	02/04/13 A	21/10/13	17/06/13	29/06/13	13/03/13	23/03/13
Temporary Works									
AI1790	Construct temporary piling platform for bored pile P95	40	40	21/08/13 A	24/12/13	16/11/13	04/01/14	17/01/14	07/03/14
Pier P96L/R									
Site Investigation									
AI1870	Site investigation for bored pile P96	10	5	11/03/13 A	12/10/13	01/06/13	15/06/13	01/03/13	12/03/13
Temporary Works									
AI1860	Construct temporary piling platform for bored pile P96	40	40	15/10/13	30/11/13	16/11/13	04/01/14	28/11/13	16/01/14
Pier P97L/R									
Temporary Works									
AI1930	Construct temporary piling platform for bored pile P97	40	40	20/08/13 A	19/11/13	16/11/13	04/01/14	28/11/13	16/01/14
Pier P98L/R									
Site Investigation									
AI2010	Site investigation for bored pile P98	10	5	28/02/13 A	05/10/13	03/06/13	15/06/13	18/02/13	28/02/13



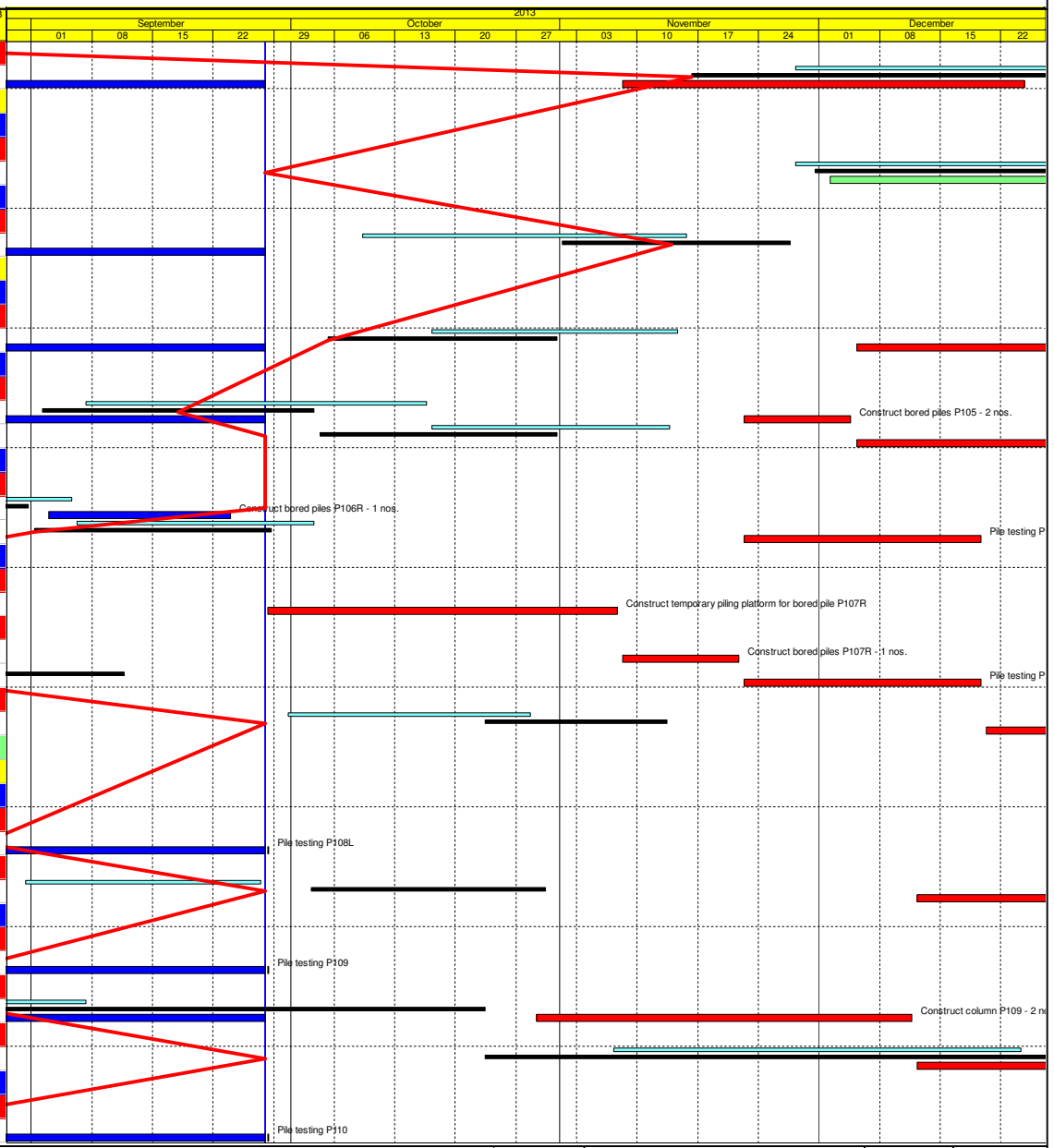
DWP_01a Programme
Actual Work
Remaining Work
Critical Remaining Work
Milestone
DWP_00B Programme

HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

Date	Revision	Checked	Approved
27/09/13	1309 rolling	Tim	

Dragages - China Harbour - VSL Joint Venture 寶嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
	Temporary Works								
AI2000	Construct temporary piling platform for bored pile P98	40	40	15/08/13 A	24/12/13	16/11/13	04/01/14	28/11/13	16/01/14
	ML17L/R 43m+65mx3+47m - Stage 5 of Works								
	Pier P101L/R								
	Foundation - Bored Pile								
AI2230	Construct bored piles P101 - 2 nos.	23	23	02/12/13	30/12/13	30/11/13	30/12/13	28/11/13	31/12/13
	Pier P103L/R								
	Foundation - Bored Pile								
AI2370	Construct bored piles P103 - 2 nos.	23	12	17/08/13 A	14/01/14	01/11/13	27/11/13	09/10/13	15/11/13
	ML18L/R 47m+55mx5+35m - Stage 5 of Works								
	Pier P104L/R (M.J.)								
	Foundation - Bored Pile								
AI2440	Construct bored piles P104 - 2 nos.	20	20	27/08/13 A	30/12/13	05/10/13	31/10/13	17/10/13	14/11/13
	Pier P105L/R								
	Foundation - Bored Pile								
AI2510	Construct bored piles P105 - 2 nos.	22	11	05/08/13 A	04/12/13	02/09/13	03/10/13	07/09/13	16/10/13
AI2520	Pile testing P105	28	28	05/12/13	01/01/14	04/10/13	31/10/13	17/10/13	13/11/13
	Pier P106L/R								
	Foundation - Bored Pile								
AI2590	Construct bored piles P106R - 1 nos.	12	0	03/09/13 A	24/09/13 A	15/08/13	31/08/13	30/07/13	05/09/13
AI2600	Pile testing P106R	28	28	22/11/13	19/12/13	01/09/13	28/09/13	06/09/13	03/10/13
	Pier P107L/R								
	Temporary Works								
AI3280	Construct temporary piling platform for bored pile P107R	30	30	28/09/13	07/11/13	16/07/13	26/08/13	06/05/13	14/06/13
	Foundation - Bored Pile								
AI2650	Construct bored piles P107R - 1 nos.	12	12	08/11/13	21/11/13	30/07/13	14/08/13	02/07/13	29/07/13
AI2660	Pile testing P107R	28	28	22/11/13	19/12/13	15/08/13	11/09/13	30/07/13	26/08/13
	Column Construction								
AI2680	Construct column P107R - 1 nos.	18	18	20/12/13	13/01/14	23/10/13	13/11/13	30/09/13	28/10/13
	Land Viaduct P108 to P114								
	ML18L/R 47m+55mx5+35m - Stage 5 of Works								
	Pier P108L/R								
	Foundation - Bored Pile								
AI2720	Pile testing P108L	28	0	30/07/13 A	28/09/13	30/07/13	26/08/13	30/06/13	27/07/13
	Column Construction								
AI2750	Construct column P108L - 1 nos.	19	19	12/12/13	06/01/14	03/10/13	30/10/13	31/08/13	27/09/13
	Pier P109L/R								
	Foundation - Bored Pile								
AI2790	Pile testing P109	28	0	15/08/13 A	28/09/13	30/07/13	27/08/13	31/05/13	27/06/13
	Column Construction								
AI2800	Construct column P109 - 2 nos.	38	38	27/08/13 A	11/12/13	27/08/13	23/10/13	14/08/13	07/09/13
	In-situ Portal/T-pier Construction								
AI2810	In-situ portal P109 - 1 nos. (Learning)	80	80	12/12/13	21/03/14	23/10/13	28/01/14	07/11/13	24/12/13
	Pier P110L/R								
	Foundation - Bored Pile								
AI2840	Pile testing P110	28	0	16/07/13 A	28/09/13	15/07/13	12/08/13	27/04/13	24/05/13



DWP_01a Programme
Actual Work
Remaining Work
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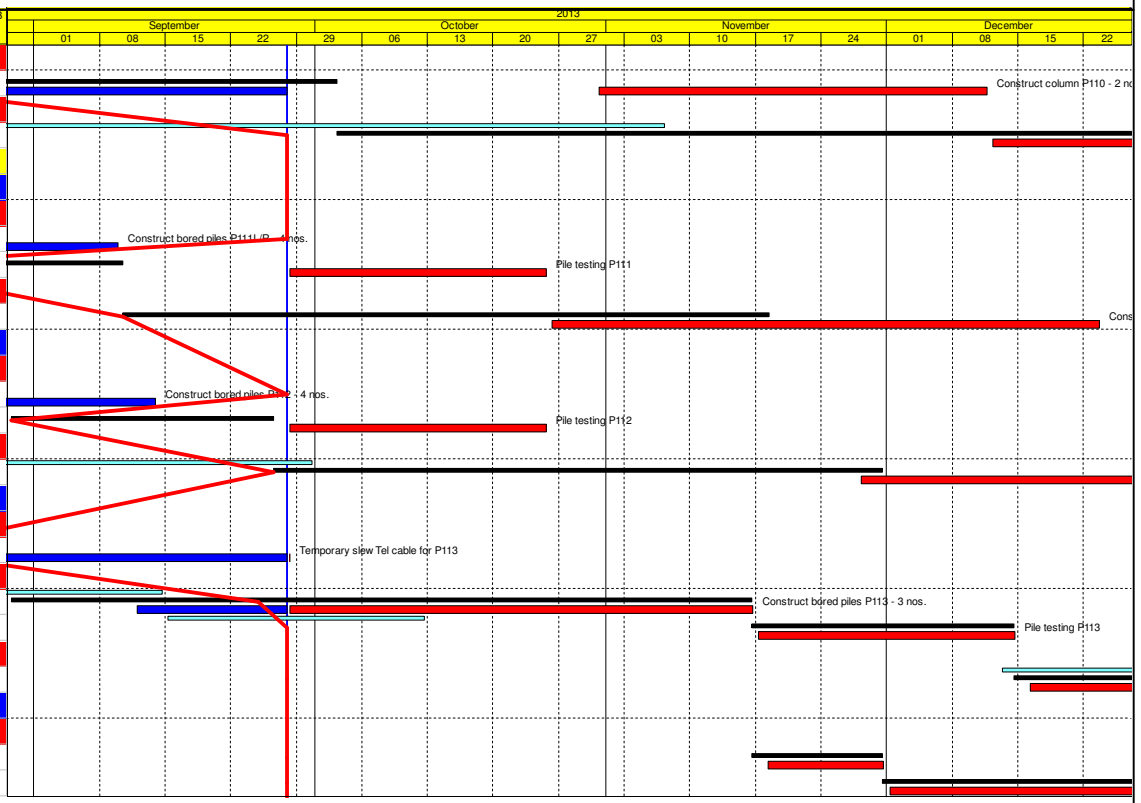
Milestone
DWP_00B Programme

HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

Date	Revision	Checked	Approved
27/09/13	1309 rolling	Tim	

Dragages - China Harbour - VSL Joint Venture 實嘉 - 中國港灣 - 威勝利聯營

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	DWP01A Start	DWP01A Finish	DWP00B Start	DWP00B Finish
Column Construction									
AI2860	Construct column P110 - 2 nos.	36	36	12/08/13 A	11/12/13	12/08/13	03/10/13	27/06/13	14/08/13
In-situ Portal/T-pier Construction									
AI2870	In-situ portal P110 - 1 nos. (Learning)	80	80	12/12/13	21/03/14	03/10/13	13/01/14	14/08/13	07/11/13
ML19L/C/R 40m+65mx2 Stage 5 of Works									
Pier P111L/C/R									
Foundation - Bored Pile									
AI2890	Construct bored piles P111L/R - 4 nos.	43	0	17/06/13 A	10/09/13 A	17/06/13	15/08/13	04/03/13	09/05/13
AI2900	Pile testing P111	28	28	28/09/13	25/10/13	13/08/13	10/09/13	10/05/13	06/06/13
Pile Cap Construction									
AI2910	Construct pile cap P111L/R - 2 nos.	50	50	26/10/13	23/12/13	10/09/13	18/11/13	07/06/13	15/08/13
Pier P112L/C/R									
Foundation - Bored Pile									
AI2950	Construct bored piles P112 - 4 nos.	42	0	18/06/13 A	14/09/13 A	18/06/13	15/08/13	10/05/13	22/06/13
AI2960	Pile testing P112	28	28	28/09/13	25/10/13	29/08/13	26/09/13	23/06/13	20/07/13
Pile Cap Construction									
AI2970	Construct pile cap P112 - 2 nos.	50	50	28/11/13	28/01/14	26/09/13	30/11/13	22/07/13	30/09/13
Pier P113 L/C/R									
Utilities Diversion									
AI3570	Temporary slew Tel cable for P113	30	0	15/07/13 A	28/09/13	15/07/13	17/08/13	04/03/13	11/04/13
Foundation - Bored Pile									
AI3010	Construct bored piles P113 - 3 nos.	57	38	12/09/13 A	16/11/13	29/08/13	16/11/13	24/06/13	14/09/13
AI3020	Pile testing P113	28	28	17/11/13	14/12/13	16/11/13	14/12/13	15/09/13	12/10/13
Column Construction									
AI3030	Construct column P113L/C/R - 3 nos.	34	34	16/12/13	27/01/14	14/12/13	27/01/14	13/12/13	21/01/14
Pier P114 L/C/R									
Foundation - Bored Pile									
AI3060	Construct bored piles P114 - 2 nos.	12	12	18/11/13	30/11/13	16/11/13	30/11/13	15/03/14	08/05/14
AI3070	Pile testing P114	28	28	01/12/13	28/12/13	30/11/13	28/12/13	09/05/14	05/06/14



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HKZB Hong Kong Link Road - 3 Months Rolling Programme 1309 (Based on DWP_01a)

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27/09/13	1309 rolling	Tim	

APPENDIX B
ACTION AND LIMIT LEVELS

Appendix B - Action and Limit Levels

Table B-1 Action and Limit Levels for 1-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AMS1	381	500
AMS4	352	

Table B-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AMS1	170	260
AMS4	171	

Table B-3 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) *

Noted: If works are to be carried during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.
(*) reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

Table B-4 Action and Limit Levels for Water Quality

Parameter (unit)	Water Depth	Action Level	Limit Level
Dissolved Oxygen (mg/L) (surface, middle, bottom)	Surface and Middle	***5.0***	***4.2*** except 5 for FCZ
	Bottom	***4.7***	***3.6***
Turbidity (NTU)	Depth average	***27.5*** and 120% of upstream control station's turbidity at the same tide of the same day	***47.0*** and 130% of turbidity at the upstream control station at the same tide of same day
Suspended Solids (mg/L)	Depth average	***23.5*** and 120% of upstream control station's SS at the same tide of the same day	***34.4*** and 130% of SS at the upstream control station at the same tide of same day and 10mg/L for WSD Seawater Intakes

Note:
(1) Depth-averaged is calculated by taking the arithmetic means of reading of all three depths
(2) For DO, non-compliance of the water quality limit occurs when monitoring result is lower that the limit.
(3) For SS & turbidity non-compliance of the water quality limits occur when monitoring result is higher than the limits.
(4) All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.
(5) The 1%-ile of baseline data for dissolved oxygen (surface and middle) and dissolved oxygen (bottom) are 4.2mg/L and 3.6mg/L respectively.

APPENDIX C
COPIES OF CALIBRATION CERTIFCATES

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA12014/67/0004

Project No. AMS 1 - Sha Lo Wan Operator: Hei

Date: 16-Aug-13 Next Due Date: 15-Oct-13

Equipment No.: A-01-67 Serial No. 3218

Ambient Condition			
Temperature, Ta (K)	299.7	Pressure, Pa (mmHg)	753.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	25-Dec-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.9	3.42	58.32	6.9	2.61
2	9.5	3.06	52.16	5.5	2.33
3	7.2	2.66	45.47	4.3	2.06
4	4.6	2.13	36.44	2.9	1.69
5	2.8	1.66	28.54	1.8	1.33

By Linear Regression of Y on X

Slope , mw = 0.0423 **Intercept, bw =** 0.1323

Correlation coefficient* = 0.9998

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.87**

Remarks:

Conducted by: hei Signature: hei Date: 16/8/2013

Checked by: W.K. IAM Signature: [signature] Date: 16/8/2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA12014/74/0004

Project No. AMS 4 - San Tau Operator: Hei

Date: 16-Aug-13 Next Due Date: 15-Oct-13

Equipment No.: A-01-74 Serial No. 2202

Ambient Condition			
Temperature, Ta (K)	300	Pressure, Pa (mmHg)	752.8

Orifice Transfer Standard Information					
Equipment No.:	A-04-05	Slope, mc	0.0592	Intercept, bc	-0.0283
Last Calibration Date:	26-Dec-12	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	25-Dec-13	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.3	3.33	56.80	7.8	2.77
2	9.3	3.02	51.58	6.5	2.53
3	7.0	2.62	44.81	5.3	2.28
4	4.6	2.13	36.41	3.4	1.83
5	2.8	1.66	28.52	2.3	1.50

By Linear Regression of Y on X

Slope , mw = 0.0452 **Intercept, bw =** 0.2134

Correlation coefficient* = 0.9985

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.72**

Remarks:

Conducted by: hei Signature: hei Date: 16/8/2013

Checked by: W.K. Tang Signature: Kwai Date: 16/8/2013

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149		0.9957	0.6896	0.8851
0.9925	0.9693	2.0010		0.9915	0.9683	1.2517
0.9903	1.0858	2.2372		0.9893	1.0847	1.3995
0.9893	1.1345	2.3464		0.9883	1.1334	1.4678
0.9840	1.3666	2.8299		0.9830	1.3652	1.7702
Qstd slope (m) =		2.09107		Qa slope (m) =		1.30939
intercept (b) =		-0.02838		intercept (b) =		-0.01775
coefficient (r) =		0.99996		coefficient (r) =		0.99996
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 34537 Page 1 of 2 Pages

Customer : Dragages - China Habour - VSL Joint Venture

Address : 3/F., Island Place Tower, 510 King's Road, North Point, H. K.

Order No. : Q30108 **Date of receipt :** 4-Jul-13

Item Tested

Description : Vantage Pro2 Weather Stations

Manufacturer : Davis

Model : 6152 CUK **Serial No. :** AK130520006

Test Conditions

Date of Test : 15-Jul-13 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : Z04.

Test Results

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S155	Std. Anemometer	NSC201331006	NIM-PRC

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : Dorothy Cheuk

Approved by : Steve Kwan

Date: 6-Aug-13

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Certificate No. 34537

Results :

1. Wind Speed

Applied Value (m/s)	UUT Reading (m/s)
2.7	2.7
5.3	5.4
7.5	7.6
10.4	10.7
15.3	15.6
19.0	20.1

Uncertainty : ± (2 % + 0.2 m/s)

2. Wind Direction

Reference Value	UUT Indication
N (0°)	N (0°)
NE (45°)	NE (45°)
E (90°)	E (90°)
SE (135°)	SE (135°)
S (180°)	S (180°)
SW (225°)	SW (225°)
W (270°)	W (270°)
NW (315°)	NW (315°)

Remark : 1. UUT: Unit-Under-Test
2. Atmospheric Pressure : 1 003 hPa
3. Before the calibration of the Wind Direction function, the Arrow Head was adjusted to the magnetic NORTH direction while the monitor indicated N. The customer is reminded to do the alignment again after installation.

---------- END ----------

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C130600
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0227)

Description / 儀器名稱	:	Sound & Vibration Analyser
Manufacturer / 製造商	:	Svantek
Model No. / 型號	:	SVAN957
Serial No. / 編號	:	21460
Supplied By / 委託者	:	Dragages - China Harbour - VSL Joint Venture 3/F, Island Place Tower, 510 King's Road, North Point, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 25 January 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : H C Chan

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 28 January 2013

Certificate of Calibration
校正證書

Certificate No. : C130600
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the Svantek acoustic calibrator SV30A, S/N : 24791 was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C130019
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
HIGH	SPL	A	Fast	114.00	1	114.2	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
HIGH	SPL	A	Fast	114.00	1	114.2 (Ref.)
				104.00		104.2
				94.00		94.2

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
HIGH	SPL	A	Fast	114.00	1	114.2	Ref.
			Slow			114.2	± 0.3

Certificate of Calibration
校正證書

Certificate No. : C130600
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
HIGH	SPL	A	Fast	114.00	63 Hz	88.0	-26.2 ± 1.5
					125 Hz	98.0	-16.1 ± 1.5
					250 Hz	105.5	-8.6 ± 1.4
					500 Hz	110.9	-3.2 ± 1.4
					1 kHz	114.2	Ref.
					2 kHz	115.4	+1.2 ± 1.6
					4 kHz	115.2	+1.0 ± 1.6
					8 kHz	113.2	-1.1 (+2.1 ; -3.1)
					12.5 kHz	109.9	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
HIGH	SPL	C	Fast	114.00	63 Hz	113.4	-0.8 ± 1.5
					125 Hz	114.0	-0.2 ± 1.5
					250 Hz	114.2	0.0 ± 1.4
					500 Hz	114.2	0.0 ± 1.4
					1 kHz	114.2	Ref.
					2 kHz	114.0	-0.2 ± 1.6
					4 kHz	113.5	-0.8 ± 1.6
					8 kHz	111.3	-3.0 (+2.1 ; -3.1)
					12.5 kHz	108.0	-6.2 (+6.0 ; -∞)

Remarks : - UUT Microphone Model No. : AC07052H & S/N : 43679

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.45 dB
	250 Hz - 500 Hz	: ± 0.40 dB
	1 kHz	: ± 0.30 dB
	2 kHz - 4 kHz	: ± 0.45 dB
	8 kHz	: ± 0.55 dB
	12.5 kHz	: ± 0.80 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C130601
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0227)

Description / 儀器名稱	:	Sound & Vibration Analyser
Manufacturer / 製造商	:	Svantek
Model No. / 型號	:	SVAN957
Serial No. / 編號	:	23851
Supplied By / 委託者	:	Dragages - China Harbour - VSL Joint Venture 3/F, Island Place Tower, 510 King's Road, North Point, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 25 January 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : H C Chan

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 28 January 2013

Sun Creation Engineering Limited - Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: calilab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C130601
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the Svantek acoustic calibrator SV30A, S/N : 24780 was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C130019
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
HIGH	SPL	A	Fast	114.00	1	113.8	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
HIGH	SPL	A	Fast	114.00	1	113.8 (Ref.)
				104.00		103.8
				94.00		93.8

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
HIGH	SPL	A	Fast	114.00	1	113.8	Ref.
			Slow			113.8	± 0.3

Certificate of Calibration
校正證書

Certificate No. : C130601
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
HIGH	SPL	A	Fast	114.00	63 Hz	87.6	-26.2 ± 1.5
					125 Hz	97.6	-16.1 ± 1.5
					250 Hz	105.1	-8.6 ± 1.4
					500 Hz	110.5	-3.2 ± 1.4
					1 kHz	113.8	Ref.
					2 kHz	115.0	+1.2 ± 1.6
					4 kHz	114.8	+1.0 ± 1.6
					8 kHz	112.8	-1.1 (+2.1 ; -3.1)
					12.5 kHz	109.6	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
HIGH	SPL	C	Fast	114.00	63 Hz	113.0	-0.8 ± 1.5
					125 Hz	113.6	-0.2 ± 1.5
					250 Hz	113.8	0.0 ± 1.4
					500 Hz	113.8	0.0 ± 1.4
					1 kHz	113.8	Ref.
					2 kHz	113.7	-0.2 ± 1.6
					4 kHz	113.1	-0.8 ± 1.6
					8 kHz	110.9	-3.0 (+2.1 ; -3.1)
					12.5 kHz	107.6	-6.2 (+6.0 ; -∞)

Remarks : - UUT Microphone Model No. : AC07502E & S/N : 48532

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.45 dB
	250 Hz - 500 Hz	: ± 0.40 dB
	1 kHz	: ± 0.30 dB
	2 kHz - 4 kHz	: ± 0.45 dB
	8 kHz	: ± 0.55 dB
	12.5 kHz	: ± 0.80 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C130599
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0227)

Description / 儀器名稱	:	Acoustic Calibrator
Manufacturer / 製造商	:	Svantek
Model No. / 型號	:	SV30A
Serial No. / 編號	:	24780
Supplied By / 委託者	:	Dragages - China Harbour - VSL Joint Venture 3/F, Island Place Tower, 510 King's Road, North Point, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 25 January 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : H C Chan

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 28 January 2013

Sun Creation Engineering Limited - Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機場四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C130599
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.1	± 0.3	± 0.2
114 dB, 1 kHz	114.0		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.999 99	1 kHz ± 0.02 %	± 0.01

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機場門樓
Tel電話: 2927 2606 Fax傳真: 2744 8986 E-mail電郵: callab@suncreation.com Website網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C130598
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0227)

Description / 儀器名稱	:	Acoustic Calibrator
Manufacturer / 製造商	:	Svantek
Model No. / 型號	:	SV30A
Serial No. / 編號	:	24791
Supplied By / 委託者	:	Dragages - China Harbour - VSL Joint Venture 3/F, Island Place Tower, 510 King's Road, North Point, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 25 January 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : H C Chan

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 28 January 2013

Sun Creation Engineering Limited Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機場門樓
Tel電話: 2927 2606 Fax傳真: 2744 8986 E-mail電郵: calfab@suncreation.com Website網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C130598
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.9	± 0.3	± 0.2
114 dB, 1 kHz	113.9		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 00	1 kHz ± 0.02 %	± 0.01

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 校正及檢測實驗所
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CASTCO

佳力高試驗中心有限公司
CASTCO TESTING CENTRE LTD.

TEST REPORT
Chemical Analysis of Water
Accuracy check of YSI Sondes Environmental Monitoring System

Date of issue: 20-08-2013
Page 1 of 1 pages Castco LRN: EN0130816-1

Sample details as supplied by customer

Customer : Dragages-China Harbour-VSL Joint Venture Customer Ref. No. : --

Address: Tung Chung Waterfront Road, adjacent to Tung Chung New Development Pier

Job Title : Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road - Section between HKSAR Boundary and Scenic Hill

Contract No.: HY/2011/09

Laboratory Test Result

Instrument Name: Sonde Environmental Monitoring System
Manufacturer : YSI
Model No. : YSI 6920
Serial No. : 02D0293AA
Instrument No. : W.03.02
Date of Calibration : 16-08-2013
Date of Next Calibration : 16-11-2013

pH Value Check (pH Probe : Model: 6589, L/N: 12C)

Expected Reading (pH Unit)	Sonde Reading (pH Unit)	Tolerance (pH Unit)	Tolerance Limit (pH Unit)	Method Refrence
4.00	4.09	+0.09	± 0.2	APHA 21e, 4500-H^+B
7.02	7.12	+0.10		
10.06	10.09	+0.03		

Turbidity Check (Turbidity Sensor : Model: 6136, S/N: 11J100475)

Expected Reading (NTU)	Sonde Reading (NTU)	Tolerance (%)	Tolerance Limit (%)	Method Refrence
4.00	4.0	0.0	± 10	APHA 21e, 2130B
10.00	9.7	-3.0		
20.00	18.9	-5.5		
50.00	48.2	-3.6		
100.00	96.7	-3.3		

Conductivity Performance Check (Conductivity Sensor : Model: 6560, L/N: 12B100106)

Expected Reading (µS/cm)	Sonde Reading (µS/cm)	Tolerance (%)	Tolerance Limit (%)	Method Refrence
1412 at 25 °C	1481 at 25 °C	+4.9	± 10	APHA 21e, 2510B

Salinity Performance Check (Salinity Sensor : Model: 6560, L/N: 12B100106)

Expected Reading (ppt)	Sonde Reading (ppt)	Tolerance (%)	Tolerance Limit (%)	Method Refrence
35	35.12	+0.3	± 10	APHA 19e, 2520B

Dissolved Oxygen Check (Dissolved Oxygen Sensor : Model: 6562, L/N: 08C100810)

DO from Winkler Titration (mg/L)	Sonde Reading (mg/L)	Tolerance (mg/L)	Tolerance Limit (mg/L)	Method Refrence
8.50	8.48	-0.02	± 0.20	APHA 21e, 4500-O C&G
4.82	4.74	-0.08		

Water Level Meter Check

Expected Reading (m)	Sonde Reading (m)	Tolerance (m)	Tolerance Limit (m)	Method Refrence
1.00	0.97	-0.03	± 0.05	YSI Sondes Procedure Manual

Temperature Check

Expected Reading (℃)	Sonde Reading (℃)	Tolerance (℃)	Tolerance Limit (℃)	Method Refrence
25.0	24.3	-0.7	± 2.0	Telarc Technical Guide No.3 1986

Checked by: _____
LI YIU WAH
Senior Chemist

End of Report

Certified by: _____
LEE STEPHEN SHU HANG
Ph.D.
Technical Director

Form No. ENV SONDE_T1 dd 22/02/2013

COPY

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CASTCO

佳力高試驗中心有限公司
CASTCO TESTING CENTRE LTD.

TEST REPORT
Chemical Analysis of Water
Accuracy check of YSI Sondes Environmental Monitoring System

Date of issue: 27-08-2013
Page 1A of 1 pages
Castco LRN: EN0130816-2

Sample details as supplied by customer

Customer : Dragages-China Harbour-VSL Joint Venture
Customer Ref. No. : --
Address: Tung Chung Waterfront Road, adjacent to Tung Chung New Development Pier
Job Title : Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road - Section between HKSAR Boundary and Scenic Hill
Contract No.: HY/2011/09

Laboratory Test Result

Instrument Name: Sonde Environmental Monitoring System
Manufacturer : YSI
Model No. : YSI 6820
Serial No. : 12B100804
Instrument No. : W.03.13
Date of Calibration : 16-08-2013
Date of Next Calibration : 16-11-2013

pH Value Check (pH Probe : Model: 6589, L/N: 12C)

Expected Reading (pH Unit)	Sonde Reading (pH Unit)	Tolerance (pH Unit)	Tolerance Limit (pH Unit)	Method Refrence
4.00	4.16	+0.16	± 0.2	APHA 21e, 4500-H^+B
7.02	7.05	+0.03		
10.06	9.98	-0.08		

Turbidity Check (Turbidity Sensor : Model: 6136, S/N: 12B100645)

Expected Reading (NTU)	Sonde Reading (NTU)	Tolerance (%)	Tolerance Limit (%)	Method Refrence
4.00	3.9	-2.5	± 10	APHA 21e, 2130B
10.00	10.3	-3.0		
20.00	19.1	-4.5		
50.00	49.1	-1.8		
100.00	99.7	-0.3		

Conductivity Performance Check (Conductivity Sensor : Model: 6560, L/N: 12B100055)

Expected Reading (µS/cm)	Sonde Reading (µS/cm)	Tolerance (%)	Tolerance Limit (%)	Method Refrence
1412 at 25 °C	1522 at 25 °C	+7.8	± 10	APHA 21e, 2510B

Salinity Performance Check (Salinity Sensor : Model: 6560, L/N: 12B100055)

Expected Reading (ppt)	Sonde Reading (ppt)	Tolerance (%)	Tolerance Limit (%)	Method Refrence
35	34.72	-0.8	± 10	APHA 19e, 2520B

Dissolved Oxygen Check (Dissolved Oxygen Sensor : Model: 6562, L/N: 12A100930)

DO from Winkler Titration (mg/L)	Sonde Reading (mg/L)	Tolerance (mg/L)	Tolerance Limit (mg/L)	Method Refrence
8.47	8.36	-0.11	± 0.20	APHA 21e, 4500-O C&G
4.87	4.73	-0.14		

Water Level Meter Check

Expected Reading (m)	Sonde Reading (m)	Tolerance (m)	Tolerance Limit (m)	Method Refrence
1.00	0.98	-0.02	± 0.05	YSI Sondes Procedure Manual

Temperature Check

Expected Reading (℃)	Sonde Reading (℃)	Tolerance (℃)	Tolerance Limit (℃)	Method Refrence
25.0	24.9	-0.1	± 2.0	Telarc Technical Guide No.3 1986

Remark: 1. This test report supersedes previous test report of Castco LRN: EN0130816-2 issued on 20-08-2013.

Checked by: _____
LI YIU WAH
Senior Chemist

End of Report

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LEE STEPHEN SHU HANG
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Form No. ENV SONDE_T1 dd 22/02/2013

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APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Impact Air Quality and Noise Monitoring Schedule in September 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep
			24 hr TSP 1 hr TSP X 3	Noise		
8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep
		24 hr TSP 1 hr TSP X 3	Noise			
15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep
	24 hr TSP 1 hr TSP X 3	Noise				24 hr TSP 1 hr TSP X 3
22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep
	Noise				24 hr TSP 1 hr TSP X 3	
29-Sep	30-Sep					
	Noise					

Air Quality Monitoring Stations
AMS1 - Sha Lo Wan
AMS4 - San Tau

Noise Monitoring Stations
NMS1 - Sha Lo Wan
NMS4 - San Tau

Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Tentative Impact Air Quality and Noise Monitoring Schedule in October 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Oct	2-Oct	3-Oct	4-Oct	5-Oct
				24 hr TSP 1 hr TSP X 3		
6-Oct	7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct
			24 hr TSP 1 hr TSP X 3	Noise		
13-Oct	14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct
		24 hr TSP 1 hr TSP X 3	Noise			
20-Oct	21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct
	24 hr TSP 1 hr TSP X 3	Noise			24 hr TSP 1 hr TSP X 3	
27-Oct	28-Oct	29-Oct	30-Oct	31-Oct		
	Noise			24 hr TSP 1 hr TSP X 3		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Air Quality Monitoring Stations
AMS1 - Sha Lo Wan
AMS4 - San Tau

Noise Monitoring Stations
NMS1 - Sha Lo Wan
NMS4 - San Tau

Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Impact Water Quality Monitoring Schedule in September 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep
	Water Quality Monitoring Mid-Ebb 11:03 Mid-Flood 17:57		Water Quality Monitoring Mid-Ebb 12:15 Mid-Flood 18:44		Water Quality Monitoring Mid-Ebb 13:25 Mid-Flood 19:40	
8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep
	Water Quality Monitoring Mid-Flood 09:09 Mid-Ebb 15:13		Water Quality Monitoring Mid-Flood 10:59 Mid-Ebb 16:46			Water Quality Monitoring Mid-Ebb 07:44 Mid-Flood 15:33
15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep
	Water Quality Monitoring Mid-Ebb 10:04 Mid-Flood 17:16		Water Quality Monitoring Mid-Ebb 11:48 Mid-Flood 18:25			Water Quality Monitoring Mid-Ebb 13:56 Mid-Flood 19:58
22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep
	Water Quality Monitoring Mid-Flood *Cancelled Mid-Ebb 15:06		Water Quality Monitoring Mid-Flood 10:50 Mid-Ebb 16:13			Water Quality Monitoring Mid-Ebb 07:02 Mid-Flood 19:53
29-Sep	30-Sep					
	Water Quality Monitoring Mid-Ebb 09:31 Mid-Flood 16:44					

*Remarks: Cancelled due to adverse weather condition (Typhoon Signal No. 8 and 3)

Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Tentative Impact Water Quality Monitoring Schedule in October 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Oct	2-Oct	3-Oct	4-Oct	5-Oct
			Water Quality Monitoring Mid-Ebb 11:05 Mid-Flood 17:33		Water Quality Monitoring Mid-Ebb 12:23 Mid-Flood 18:28	
6-Oct	7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct
	Water Quality Monitoring Mid-Flood 08:22 Mid-Ebb 14:20		Water Quality Monitoring Mid-Flood 10:01 Mid-Ebb 15:48		Water Quality Monitoring Mid-Flood 12:24 Mid-Ebb 18:02	
13-Oct	14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct
		Water Quality Monitoring Mid-Ebb 09:43 Mid-Flood 16:40		Water Quality Monitoring Mid-Ebb 11:29 Mid-Flood 17:46		Water Quality Monitoring Mid-Ebb 12:55 Mid-Flood 18:46
20-Oct	21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct
	Water Quality Monitoring Mid-Ebb 14:06 Mid-Flood 19:40		Water Quality Monitoring Mid-Flood 09:43 Mid-Ebb 15:10		Water Quality Monitoring Mid-Flood 11:28 Mid-Ebb 16:27	
27-Oct	28-Oct	29-Oct	30-Oct	31-Oct	1-Nov	2-Nov
	Water Quality Monitoring Mid-Ebb 06:53 Mid-Flood 15:06		Water Quality Monitoring Mid-Ebb 09:28 Mid-Flood 16:10		Water Quality Monitoring Mid-Ebb 11:10 Mid-Flood 17:13	

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Construction-Phase Dolphin Monitoring in West Lantau (Line Transect Vessel Survey) in September 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep
8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep
			Line Transect Vessel Survey			
15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep
				Line Transect Vessel Survey		
22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep
29-Sep	30-Sep					

Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Tentative Construction-Phase Dolphin Monitoring in West Lantau (Line Transect Vessel Survey) in October 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Oct	2-Oct	3-Oct	4-Oct	5-Oct
6-Oct	7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct
			Line Transect Vessel Survey			
13-Oct	14-Oct	15-Oct	16-Oct	17-Oct	18-Oct	19-Oct
					Line Transect Vessel Survey	
20-Oct	21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct
27-Oct	28-Oct	29-Oct	30-Oct	31-Oct		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

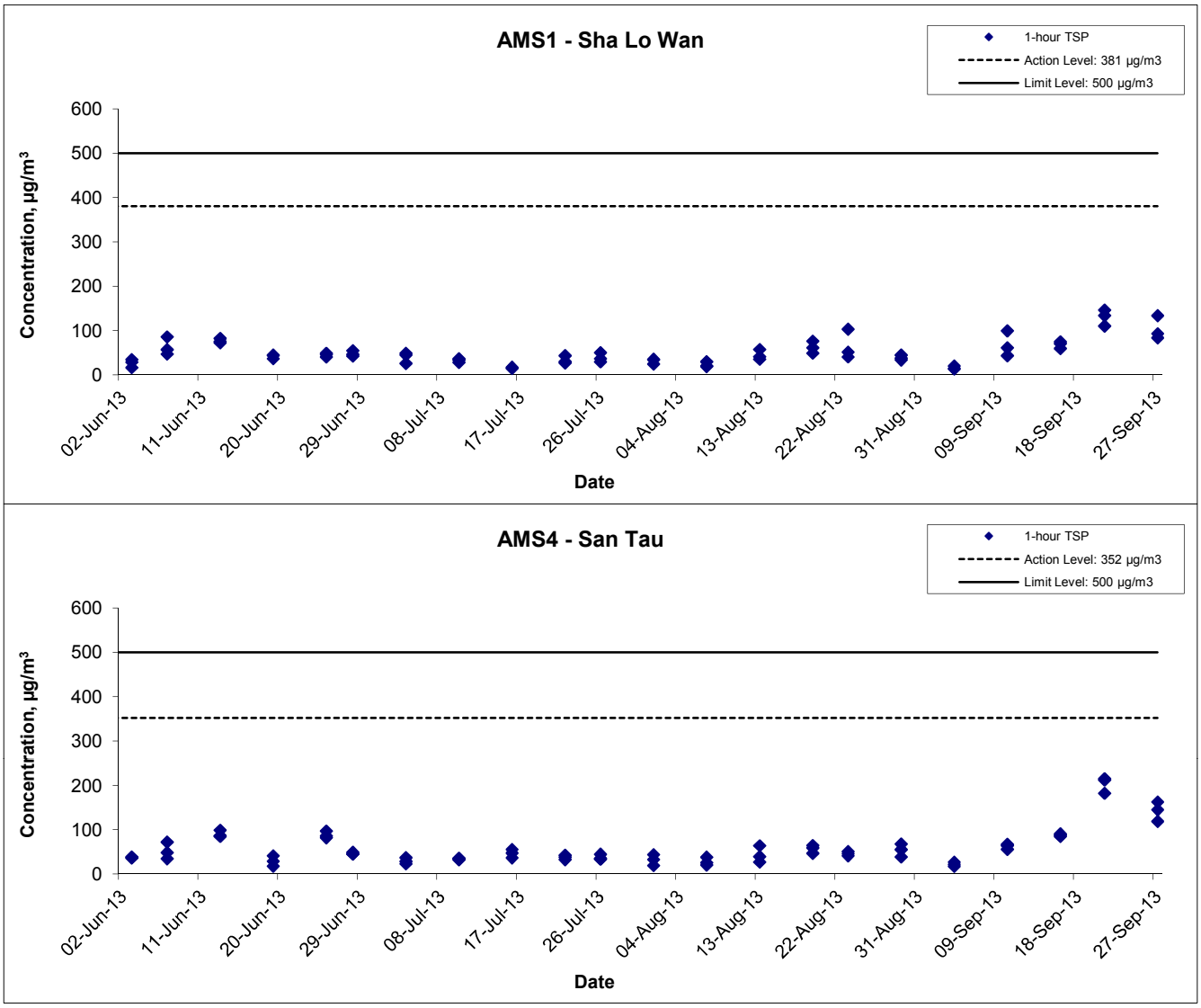
Location AMS1 - Sha Lo Wan

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
4-Sep-13	09:40	Rainy	297.7	759.2	2.7851	2.7866	0.0015	2185.9	2186.9	1.0	1.23	1.23	1.23	74.0	20
4-Sep-13	10:42	Rainy	297.9	759.1	2.7779	2.7789	0.0010	2186.9	2187.9	1.0	1.23	1.23	1.23	73.9	14
4-Sep-13	13:00	Rainy	297.0	759.4	2.7757	2.7768	0.0011	2187.9	2188.9	1.0	1.23	1.23	1.23	74.1	15
10-Sep-13	13:00	Sunny	303.1	759.0	2.7798	2.7830	0.0032	2212.9	2213.9	1.0	1.22	1.22	1.22	73.2	44
10-Sep-13	14:00	Sunny	303.3	758.8	2.7742	2.7787	0.0045	2213.9	2214.9	1.0	1.22	1.22	1.22	73.2	61
10-Sep-13	15:00	Sunny	303.5	758.6	2.7755	2.7828	0.0073	2214.9	2215.9	1.0	1.22	1.22	1.22	73.2	100
16-Sep-13	09:00	Sunny	301.5	758.5	2.7858	2.7902	0.0044	2239.9	2240.9	1.0	1.22	1.22	1.22	73.4	60
16-Sep-13	13:00	Sunny	302.9	757.1	2.7917	2.7969	0.0052	2240.9	2241.9	1.0	1.22	1.22	1.22	73.2	71
16-Sep-13	14:05	Sunny	303.1	756.9	2.7760	2.7815	0.0055	2241.9	2242.9	1.0	1.22	1.22	1.22	73.1	75
21-Sep-13	13:00	Sunny	306.9	750.9	2.7731	2.7837	0.0106	2266.9	2267.9	1.0	1.21	1.21	1.21	72.3	147
21-Sep-13	14:00	Sunny	307.1	750.7	2.7625	2.7722	0.0097	2267.9	2268.9	1.0	1.21	1.20	1.21	72.3	134
21-Sep-13	15:00	Sunny	307.3	750.5	2.7672	2.7752	0.0080	2268.9	2269.9	1.0	1.20	1.20	1.20	72.3	111
27-Sep-13	08:55	Cloudy	299.1	761.8	2.7743	2.7812	0.0069	2293.9	2294.9	1.0	1.23	1.23	1.23	73.9	93
27-Sep-13	09:57	Cloudy	299.3	761.7	2.7716	2.7778	0.0062	2294.9	2295.9	1.0	1.23	1.23	1.23	73.9	84
27-Sep-13	10:59	Cloudy	299.5	761.5	2.7904	2.8003	0.0099	2295.9	2296.9	1.0	1.23	1.23	1.23	73.8	134
														Min	14
														Max	147
														Average	78

Location AMS4 - San Tau

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
4-Sep-13	09:00	Rainy	298.0	759.1	2.7750	2.7770	0.0020	1715.6	1716.6	1.0	1.22	1.22	1.22	73.4	27
4-Sep-13	14:30	Rainy	297.2	759.3	2.7993	2.8006	0.0013	1716.6	1717.6	1.0	1.23	1.22	1.22	73.5	18
4-Sep-13	15:32	Rainy	297.4	759.1	2.7913	2.7929	0.0016	1717.6	1718.6	1.0	1.22	1.22	1.22	73.5	22
10-Sep-13	09:00	Sunny	301.3	761.1	2.7533	2.7582	0.0049	1742.8	1743.8	1.0	1.22	1.22	1.22	73.0	67
10-Sep-13	10:00	Sunny	301.5	760.9	2.7639	2.7680	0.0041	1743.8	1744.8	1.0	1.22	1.22	1.22	73.0	56
10-Sep-13	11:00	Sunny	301.7	760.7	2.7646	2.7693	0.0047	1744.8	1745.8	1.0	1.22	1.22	1.22	73.0	64
16-Sep-13	09:35	Sunny	303.2	758.2	2.7748	2.7812	0.0064	1769.8	1770.8	1.0	1.21	1.21	1.21	72.6	88
16-Sep-13	10:40	Sunny	303.4	758.0	2.7889	2.7955	0.0066	1770.8	1771.8	1.0	1.21	1.21	1.21	72.6	91
16-Sep-13	13:05	Sunny	302.9	757.2	2.7871	2.7933	0.0062	1771.8	1772.8	1.0	1.21	1.21	1.21	72.6	85
21-Sep-13	09:00	Sunny	302.9	753.9	2.7651	2.7805	0.0154	1796.9	1797.9	1.0	1.21	1.21	1.21	72.4	213
21-Sep-13	10:00	Sunny	303.1	753.7	2.7757	2.7913	0.0156	1797.9	1798.9	1.0	1.21	1.21	1.21	72.4	215
21-Sep-13	11:00	Sunny	303.3	753.5	2.8006	2.8138	0.0132	1798.9	1799.9	1.0	1.21	1.21	1.21	72.4	182
27-Sep-13	13:01	Cloudy	300.4	759.7	2.7689	2.7776	0.0087	1823.9	1824.9	1.0	1.22	1.22	1.22	73.1	119
27-Sep-13	14:03	Cloudy	300.6	759.5	2.7656	2.7775	0.0119	1824.9	1825.9	1.0	1.22	1.22	1.22	73.0	163
27-Sep-13	15:07	Cloudy	300.8	759.3	2.7573	2.7679	0.0106	1825.9	1826.9	1.0	1.22	1.22	1.22	73.0	145
														Min	18
														Max	215
														Average	104

1-hour TSP Concentration Levels



Title: Graphical Presentation of 1-hour TSP Monitoring Results	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill	Scale: N.T.S Date: Sep 13	Project No.: MA12014 Appendix: E

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APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

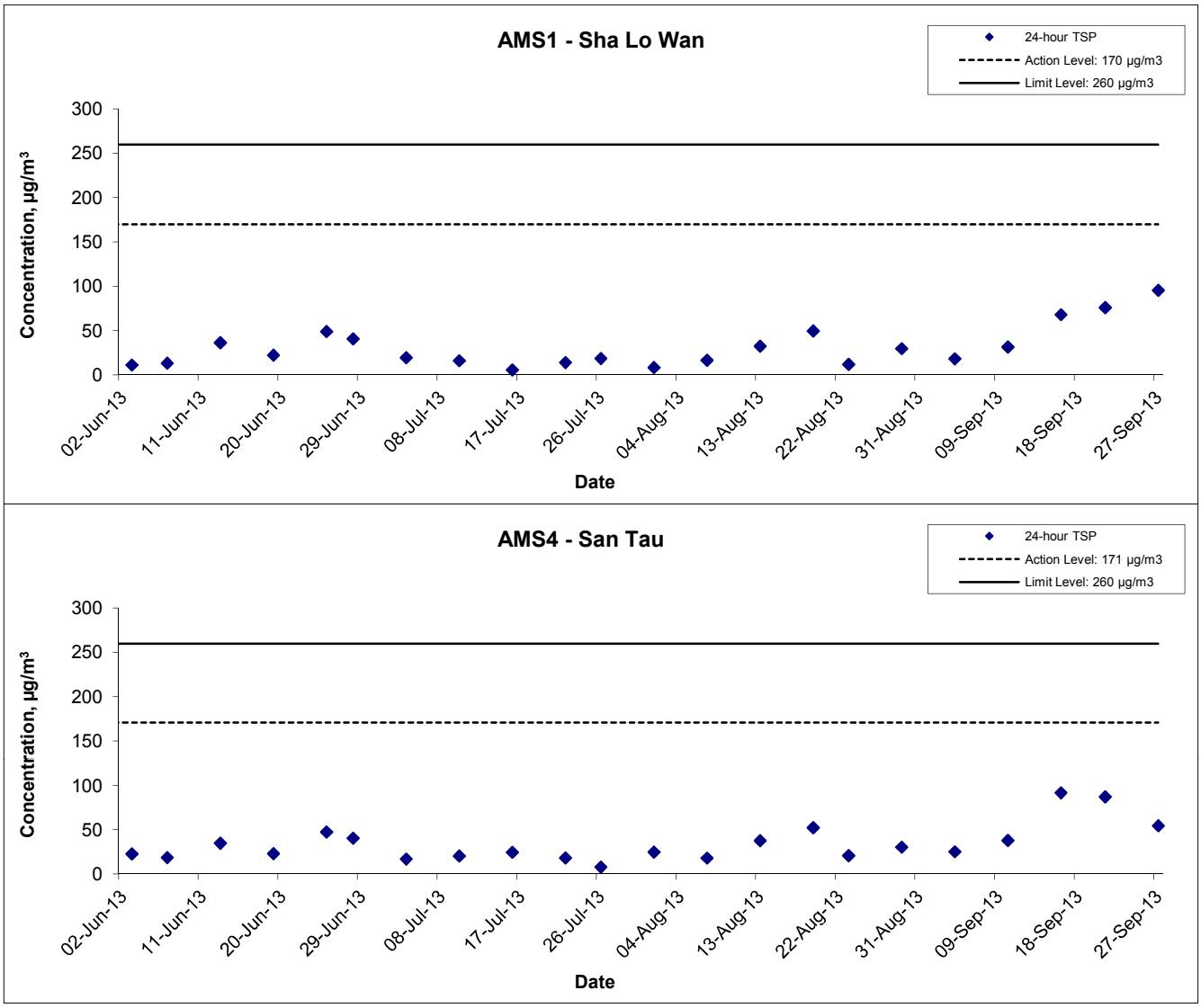
Location AMS1 - Sha Lo Wan

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
4-Sep-13	14:01	Cloudy	297.3	759.2	2.7880	2.8206	0.0326	2188.9	2212.9	24.0	1.23	1.23	1.23	1776.4	18
10-Sep-13	16:05	Sunny	303.6	758.4	2.7635	2.8190	0.0555	2215.9	2239.9	24.0	1.22	1.22	1.22	1755.7	32
16-Sep-13	15:07	Sunny	303.3	756.7	2.7898	2.9093	0.1195	2242.9	2266.9	24.0	1.22	1.22	1.22	1754.3	68
21-Sep-13	16:05	Sunny	307.4	750.3	2.7648	2.8968	0.1320	2269.9	2293.9	24.0	1.20	1.20	1.20	1734.0	76
27-Sep-13	13:25	Cloudy	300.2	759.8	2.7665	2.9355	0.1690	2296.9	2320.9	24.0	1.23	1.23	1.23	1767.9	96
														Min	18
														Max	96
														Average	58

Location AMS4 - San Tau

Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
4-Sep-13	16:35	Cloudy	297.6	758.9	2.7486	2.7931	0.0445	1718.6	1742.6	24.0	1.22	1.22	1.22	1762.1	25
10-Sep-13	12:00	Sunny	301.9	760.5	2.7498	2.8163	0.0665	1745.8	1769.8	24.0	1.22	1.22	1.22	1750.2	38
16-Sep-13	14:10	Sunny	303.0	757.0	2.7646	2.9244	0.1598	1772.8	1796.8	24.0	1.21	1.21	1.21	1742.2	92
21-Sep-13	13:00	Sunny	303.0	753.5	2.7919	2.9435	0.1516	1799.9	1823.9	24.0	1.21	1.21	1.21	1737.9	87
27-Sep-13	16:15	Cloudy	301.1	759.1	2.7729	2.8685	0.0956	1826.9	1850.9	24.0	1.22	1.22	1.22	1751.1	55
														Min	25
														Max	92
														Average	59

24-hour TSP Concentration Levels



Title: Graphical Presentation of 24-hour TSP Monitoring Results	Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill	Scale: N.T.S Date: Sep 13	Project No.: MA12014 Appendix: F

CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

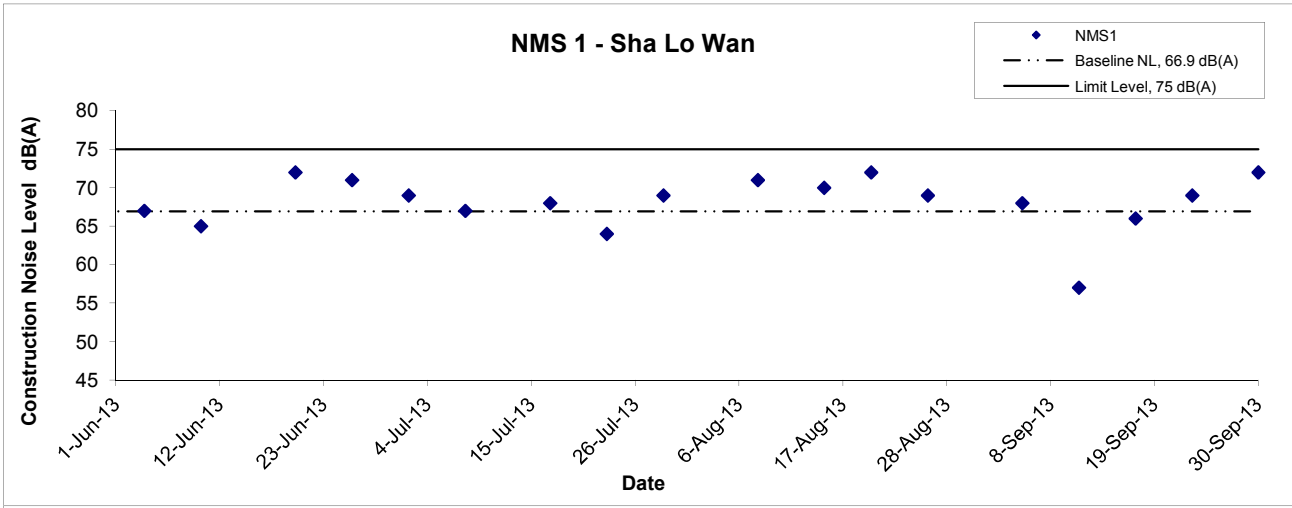
Location NMS 1 - Sha Lo Wan								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
5-Sep-13	Cloudy	10:30	67.2	69.7	63.2	68	66.9	68 Measured ≦ Limit Level
		10:35	64.2	67.0	61.2			
		10:40	72.1	75.4	64.1			
		10:45	65.9	67.1	64.5			
		10:50	65.3	66.1	64.2			
		10:55	65.9	66.8	65.0			
11-Sep-13	Sunny	15:00	54.7	58.9	52.6	57		57 Measured ≦ Limit Level
		15:05	57.2	62.4	55.4			
		15:10	53.4	58.4	53.2			
		15:15	54.1	57.3	52.3			
		15:20	56.2	60.3	53.7			
		15:25	61.4	64.8	58.9			
17-Sep-13	Cloudy	13:30	65.5	72.9	61.2	66		66 Measured ≦ Limit Level
		13:35	63.9	73.1	60.6			
		13:40	66.1	74.2	61.5			
		13:45	65.2	71.9	59.3			
		13:50	67.2	73.4	61.9			
		13:55	65.0	70.7	60.2			
23-Sep-13	Cloudy	15:00	71.2	72.3	47.7	69		69 Measured ≦ Limit Level
		15:05	67.7	72.0	52.4			
		15:10	69.5	71.1	47.1			
		15;15	68.3	71.4	51.8			
		15:20	70.5	71.8	48.7			
		15:25	68.4	73.6	46.0			
30-Sep-13	Cloudy	11:25	71.7	74.9	60.9	72		72 Measured ≦ Limit Level
		11:30	74.6	76.9	65.1			
		11:35	71.6	75.5	63.2			
		11:40	69.0	73.1	60.3			
		11:45	74.9	79.2	58.5			
		11:50	68.9	74.6	59.5			

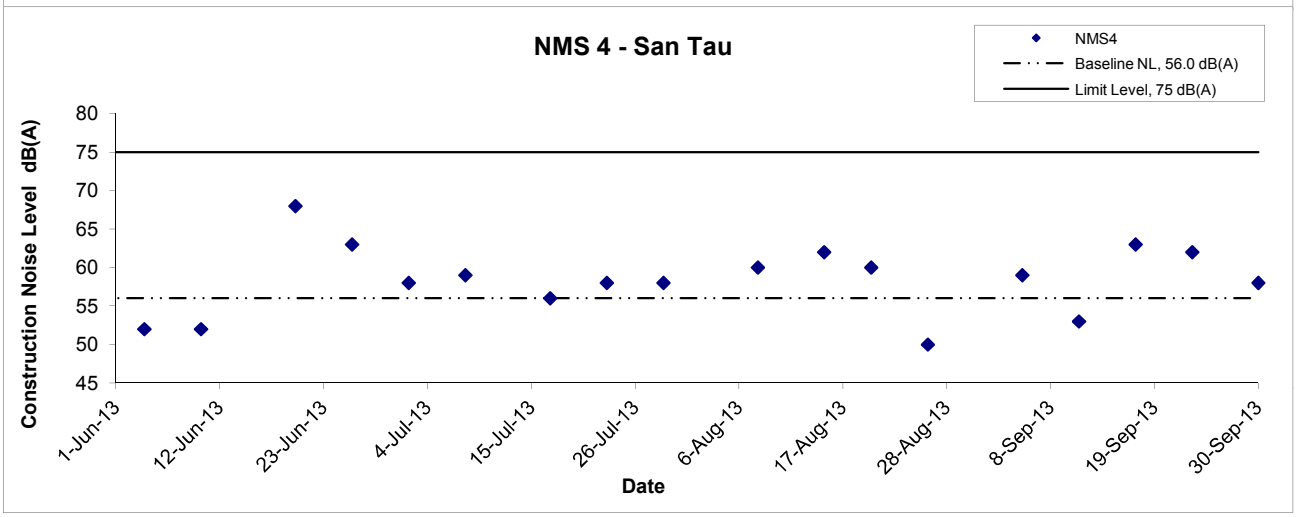
Remark: * +3dB(A) Façade correction included

Location NMS 4 - San Tau								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
5-Sep-13	Cloudy	15:30	59.7	60.9	58.2	59	56.0	59 Measured ≦ Limit Level
		15:35	58.8	59.8	57.7			
		15:40	58.8	59.7	58.0			
		15:45	58.9	59.8	57.9			
		15:50	60.7	62.0	59.1			
		15:55	58.8	60.4	57.2			
11-Sep-13	Sunny	16:00	52.4	55.7	48.2	53		53 Measured ≦ Limit Level
		16:05	54.2	56.8	50.3			
		16:10	52.6	55.4	48.0			
		16:15	53.1	55.7	48.7			
		16:20	54.2	56.8	50.0			
		16:25	52.8	56.2	49.3			
17-Sep-13	Cloudy	15:30	62.4	63.6	60.0	63		63 Measured ≦ Limit Level
		15:35	62.0	64.7	59.3			
		15:40	63.8	65.7	61.4			
		15:45	62.4	64.1	60.3			
		15:50	62.1	64.0	60.4			
		15:55	62.2	63.3	60.1			
23-Sep-13	Cloudy	13:30	62.4	63.5	51.8	62		62 Measured ≦ Limit Level
		13:35	60.8	63.1	50.7			
		13:40	62.0	63.3	51.8			
		13:45	61.5	63.2	51.0			
		13:50	61.9	64.1	51.8			
		13:55	63.1	64.8	53.1			
30-Sep-13	Cloudy	14:20	57.5	60.4	52.3	58		58 Measured ≦ Limit Level
		14:25	56.9	59.7	51.1			
		14:30	58.7	61.3	53.3			
		14:35	59.4	62.7	54.1			
		14:40	57.7	60.9	53.2			
		14:45	58.1	60.2	54.6			

Remark: * +3dB(A) Façade correction included

Noise Levels





Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA12014	CINOTECH
		Date Sep 13	Appendix G	

APPENDIX H
WATER QUALITY MONITORING RESULTS AND GRAPHICAL PRESENTATION

Water Quality Monitoring Results at CS1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	10:30	Surface	1	28.5 28.5	28.5	7.9 7.9	7.9	5.5 5.5	5.5	79.7 79.5	79.6	5.9 5.9	5.9	5.5	6.6 6.5	6.6	5.3	2.5 1.8	2.2	2.2
				Middle	6.5	26.9 26.9	26.9	7.9 7.9	7.9	27.9 27.9	27.9	65.9 65.4	65.7	5.0 5.0	5.0		4.1 4.3	4.2		2.5 2.5	2.5	
				Bottom	12	26.2 26.2	26.2	7.9 7.9	7.9	31.5 31.5	31.5	66.9 66.7	66.8	5.1 5.1	5.1	5.1	5.3 5.0	5.2		1.9 2.0	2.0	
4-Sep-13	Cloudy	Moderate	12:31	Surface	1	27.0 27.0	27.0	7.9 7.9	7.9	15.7 15.7	15.7	73.4 73.1	73.3	5.5 5.5	5.5	5.3	4.7 4.5	4.6	4.3	4.1 4.0	4.1	3.1
				Middle	6	27.1 27.1	27.1	7.9 7.9	7.9	27.9 28.0	28.0	69.4 69.8	69.6	5.1 5.1	5.1		3.0 2.9	3.0		2.1 2.3	2.2	
				Bottom	11	26.7 26.7	26.7	7.9 7.9	7.9	31.8 30.8	31.3	67.8 66.3	67.1	4.9 4.8	4.9	4.9	5.1 5.7	5.4		2.9 3.1	3.0	
6-Sep-13	Sunny	Calm	13:29	Surface	1	27.0 27.0	27.0	7.9 7.9	7.9	22.6 22.6	22.6	78.7 78.1	78.4	5.6 5.6	5.6	5.3	5.3 5.8	5.6	14.9	3.1 3.6	3.4	3.7
				Middle	7	26.5 26.5	26.5	7.9 7.9	7.9	24.0 24.0	24.0	70.2 68.8	69.5	5.0 4.9	5.0		12.9 14.1	13.5		3.5 5.5	4.5	
				Bottom	13	26.3 26.3	26.3	7.9 7.9	7.9	26.4 26.4	26.4	70.7 68.8	69.8	5.1 5.0	5.1	5.1	25.3 26.0	25.7		2.8 3.4	3.1	
9-Sep-13	Sunny	Moderate	14:20	Surface	1	27.7 27.7	27.7	7.9 7.9	7.9	21.1 21.1	21.1	85.9 91.1	88.5	6.0 6.3	6.2	5.8	4.0 4.0	4.0	4.3	3.1 1.9	2.5	2.8
				Middle	6.5	27.0 27.1	27.1	7.9 7.9	7.9	23.9 23.8	23.9	74.5 76.2	75.4	5.2 5.3	5.3		3.1 3.6	3.4		2.4 2.3	2.4	
				Bottom	12	26.9 26.9	26.9	7.9 7.9	7.9	24.9 24.9	24.9	74.5 74.2	74.4	5.2 5.2	5.2	5.2	5.6 5.2	5.4		4.0 2.8	3.4	
11-Sep-13	Sunny	Moderate	16:27	Surface	1	27.9 27.9	27.9	7.9 7.9	7.9	17.5 17.5	17.5	82.4 82.5	82.5	6.3 6.3	6.3	6.0	3.9 3.9	3.9	6.5	2.5 3.3	2.9	2.7
				Middle	6.5	26.9 26.9	26.9	8.0 8.0	8.0	23.2 23.3	23.3	74.4 74.6	74.5	5.7 5.7	5.7		7.1 7.2	7.2		2.6 2.7	2.7	
				Bottom	12	26.8 26.8	26.8	8.0 8.0	8.0	24.1 24.1	24.1	72.1 72.1	72.1	5.5 5.5	5.5	5.5	8.5 8.5	8.5		2.0 3.0	2.5	
14-Sep-13	Sunny	Moderate	07:05	Surface	1	27.8 27.8	27.8	8.0 8.0	8.0	20.0 20.1	20.1	80.5 80.6	80.6	5.6 5.6	5.6	5.6	3.1 2.9	3.0	4.8	2.3 1.7	2.0	2.2
				Middle	7	27.7 27.8	27.8	8.1 8.1	8.1	23.8 23.0	23.4	80.4 81.2	80.8	5.5 5.5	5.5		4.4 4.5	4.5		3.2 2.3	2.8	
				Bottom	13	27.5 27.4	27.5	8.1 8.1	8.1	25.3 25.4	25.4	75.9 75.8	75.9	5.1 5.1	5.1	5.1	6.8 6.9	6.9		2.2 1.5	1.9	
16-Sep-13	Sunny	Calm	09:18	Surface	1	28.1 28.0	28.1	8.1 8.1	8.1	23.4 25.5	24.5	94.7 91.9	93.3	6.5 6.3	6.4	6.3	3.3 3.5	3.4	3.3	4.0 3.7	3.9	3.7
				Middle	6.5	28.1 28.0	28.1	8.1 8.1	8.1	23.4 26.1	24.8	90.9 88.0	89.5	6.2 6.1	6.2		3.1 3.1	3.1		4.4 3.4	3.9	
				Bottom	12	28.0 28.0	28.0	8.1 8.1	8.1	25.5 25.8	25.7	79.5 78.2	78.9	5.4 5.3	5.4	5.4	3.3 3.7	3.5		3.0 3.5	3.3	
18-Sep-13	Fine	Moderate	12:07	Surface	1	28.0 28.1	28.1	8.2 8.2	8.2	26.1 26.1	26.1	99.2 96.5	97.9	6.8 6.6	6.7	6.6	6.2 6.7	6.5	12.5	15.6 8.4	12.0	12.7
				Middle	7	28.0 28.0	28.0	8.2 8.2	8.2	26.2 26.3	26.3	93.3 96.0	94.7	6.4 6.5	6.5		12.4 11.0	11.7		18.0 12.8	15.4	
				Bottom	13	28.0 28.0	28.0	8.2 8.2	8.2	26.4 26.4	26.4	93.3 94.5	93.9	6.4 6.4	6.4	6.4	20.7 17.8	19.3		11.6 10.0	10.8	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	13:36	Surface	1	28.9 29.0	29.0	8.1 8.1	8.1	23.9 23.9	23.9	72.1 72.8	72.5	5.5 5.5	5.5	5.5	6.1 5.6	5.9	11.1	3.3 5.7	4.5	5.2
				Middle	7.5	28.8 28.8	28.8	8.1 8.1	8.1	24.6 24.5	24.6	71.6 71.2	71.4	5.5 5.4	5.5		12.4 12.3	12.4		5.8 4.8	5.3	
				Bottom	14	28.6 28.7	28.7	8.1 8.1	8.1	25.3 24.9	25.1	69.0 69.0	69.0	5.3 5.3	5.3	5.3	15.7 14.4	15.1		5.8 5.7	5.8	
23-Sep-13	Cloudy	Rough	15:08	Surface	1	27.3 27.4	27.4	8.1 8.1	8.1	22.2 22.2	22.2	94.6 94.2	94.4	6.6 6.6	6.6	6.6	10.6 11.3	11.0	14.5	6.3 7.5	6.9	6.6
				Middle	8	27.2 27.2	27.2	8.2 8.2	8.2	22.6 22.6	22.6	93.2 93.0	93.1	6.5 6.5	6.5		11.6 11.0	11.3		6.8 6.2	6.5	
				Bottom	15	27.1 27.1	27.1	8.1 8.1	8.1	23.1 23.1	23.1	90.7 90.4	90.6	6.4 6.3	6.4	6.4	23.0 19.5	21.3		5.2 7.7	6.5	
25-Sep-13	Sunny	Calm	15:42	Surface	1	28.6 28.6	28.6	8.1 8.1	8.1	19.2 19.2	19.2	80.6 81.0	80.8	5.5 5.5	5.5	5.3	3.0 3.0	3.0	11.3	5.1 4.4	4.8	4.6
				Middle	6.5	27.9 27.9	27.9	8.2 8.2	8.2	27.0 27.0	27.0	76.0 76.7	76.4	5.1 5.1	5.1		14.0 14.2	14.1		4.7 4.4	4.6	
				Bottom	12	27.9 27.9	27.9	8.2 8.2	8.2	27.0 27.1	27.1	76.9 76.6	76.8	5.1 5.1	5.1	5.1	16.7 16.7	16.7		4.0 4.5	4.3	
28-Sep-13	Sunny	Calm	06:28	Surface	1	27.0 27.0	27.0	8.2 8.2	8.2	27.2 27.2	27.2	88.6 90.1	89.4	6.0 6.1	6.1	6.2	2.7 2.5	2.6	2.4	2.4 2.3	2.4	2.7
				Middle	5.5	27.2 27.2	27.2	8.2 8.2	8.2	27.8 27.7	27.8	92.1 92.9	92.5	6.2 6.2	6.2		1.5 1.5	1.5		3.2 2.9	3.1	
				Bottom	10	27.3 27.3	27.3	8.2 8.2	8.2	29.1 29.1	29.1	89.7 88.0	88.9	6.0 5.9	6.0	6.0	3.2 3.1	3.2		2.8 2.5	2.7	
30-Sep-13	Cloudy	Calm	09:35	Surface	1	27.3 27.3	27.3	8.3 8.3	8.3	29.4 29.4	29.4	84.5 82.7	83.6	5.6 5.5	5.6	5.5	2.5 2.6	2.6	5.3	1.3 1.7	1.5	2.1
				Middle	6	27.8 27.6	27.7	8.3 8.3	8.3	30.6 30.8	30.7	79.7 79.0	79.4	5.3 5.2	5.3		3.1 3.0	3.1		2.6 2.3	2.5	
				Bottom	11	28.0 27.9	28.0	8.3 8.3	8.3	31.1 31.1	31.1	76.9 76.3	76.6	5.1 5.0	5.1	5.1	10.8 9.3	10.1		2.7 2.0	2.4	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	17:50	Surface	1	29.5 29.5	29.5	8.0 8.0	8.0	12.4 12.4	12.4	79.8 79.3	79.6	5.9 5.9	5.9	5.5	3.8 3.8	3.8	7.6	3.7 3.0	3.4	3.7
				Middle	6	27.5 27.5	27.5	7.8 7.8	7.8	21.9 21.9	21.9	65.9 65.4	65.7	5.0 5.0	5.0		6.6 6.3	6.5		3.3 3.8	3.6	
				Bottom	11	27.2 27.1	27.2	7.8 7.8	7.8	25.7 25.7	25.7	67.3 67.1	67.2	5.0 5.0	5.0	5.0	12.3 12.4	12.4		3.8 4.3	4.1	
4-Sep-13	Cloudy	Moderate	18:27	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	12.8 12.8	12.8	75.4 69.3	72.4	5.6 5.1	5.4	5.3	3.9 3.8	3.9	6.9	3.6 3.6	3.6	3.4
				Middle	6	27.1 27.1	27.1	7.8 7.8	7.8	20.5 20.5	20.5	68.6 68.6	68.6	5.1 5.1	5.1		6.1 6.1	6.1		4.1 3.1	3.6	
				Bottom	11	27.0 27.0	27.0	7.8 7.8	7.8	25.2 25.2	25.2	68.9 68.4	68.7	5.1 5.0	5.1	5.1	10.8 10.8	10.8		2.8 3.1	3.0	
6-Sep-13	Fine	Calm	18:46	Surface	1	27.4 27.4	27.4	7.7 7.7	7.7	18.5 18.5	18.5	78.4 79.1	78.8	5.6 5.6	5.6	5.3	6.0 6.7	6.4	15.2	6.5 7.5	7.0	9.9
				Middle	6.5	27.0 27.0	27.0	7.8 7.8	7.8	21.0 21.0	21.0	69.7 70.7	70.2	5.0 5.0	5.0		13.6 13.7	13.7		13.5 9.8	11.7	
				Bottom	12	26.5 26.5	26.5	7.8 7.8	7.8	23.4 23.3	23.4	68.7 69.9	69.3	4.8 5.0	4.9	4.9	25.1 25.9	25.5		10.7 11.2	11.0	
9-Sep-13	Sunny	Moderate	09:02	Surface	1	27.4 27.4	27.4	7.7 7.7	7.7	19.7 19.8	19.8	75.1 74.1	74.6	5.3 5.3	5.3	5.3	7.5 7.6	7.6	7.8	2.7 3.8	3.3	2.7
				Middle	6	27.4 27.5	27.5	7.7 7.7	7.7	19.8 19.8	19.8	75.0 74.2	74.6	5.3 5.3	5.3		9.2 9.7	9.5		2.5 2.5	2.5	
				Bottom	11	27.4 27.4	27.4	7.7 7.7	7.7	20.0 19.9	20.0	73.9 73.2	73.6	5.2 5.2	5.2	5.2	6.2 6.3	6.3		2.7 2.1	2.4	
11-Sep-13	Sunny	Moderate	11:05	Surface	1	27.4 27.4	27.4	7.7 7.7	7.7	15.7 15.7	15.7	70.6 70.6	70.6	5.4 5.4	5.4	5.4	3.5 3.5	3.5	5.1	2.4 2.3	2.4	2.2
				Middle	7.5	27.3 27.3	27.3	7.8 7.8	7.8	16.9 17.0	17.0	69.4 69.4	69.4	5.3 5.3	5.3		4.8 5.2	5.0		2.2 1.6	1.9	
				Bottom	14	26.9 26.9	26.9	7.9 7.9	7.9	20.9 21.0	21.0	67.9 67.8	67.9	5.2 5.2	5.2	5.2	6.4 7.1	6.8		2.1 2.6	2.4	
14-Sep-13	Sunny	Moderate	14:42	Surface	1	29.6 28.6	29.1	7.9 8.0	8.0	18.6 18.4	18.5	114.5 116.4	115.5	7.9 8.0	8.0	7.4	5.5 5.7	5.6	11.2	2.1 1.0	1.6	1.9
				Middle	7.5	27.7 27.6	27.7	8.1 8.1	8.1	27.7 28.4	28.1	100.3 95.8	98.1	6.9 6.6	6.8		10.2 10.0	10.1		3.4 1.5	2.5	
				Bottom	14	27.5 27.6	27.6	8.1 8.1	8.1	28.5 28.4	28.5	86.2 84.6	85.4	5.9 5.8	5.9	5.9	17.5 18.5	18.0		1.5 1.7	1.6	
16-Sep-13	Sunny	Calm	16:50	Surface	1	28.6 28.6	28.6	8.0 8.0	8.0	23.0 23.0	23.0	101.5 101.6	101.6	7.0 6.9	7.0	6.3	6.7 6.5	6.6	7.6	5.3 5.2	5.3	4.9
				Middle	6	28.5 28.5	28.5	8.0 8.0	8.0	22.4 23.1	22.8	82.4 84.3	83.4	5.5 5.7	5.6		6.4 6.7	6.6		4.8 5.0	4.9	
				Bottom	11	28.2 28.2	28.2	8.0 8.0	8.0	24.1 24.0	24.1	73.7 74.6	74.2	5.0 5.1	5.1	5.1	9.7 9.6	9.7		5.2 4.0	4.6	
18-Sep-13	Fine	Moderate	18:05	Surface	1	28.1 28.1	28.1	8.0 8.0	8.0	22.7 22.8	22.8	90.6 90.5	90.6	6.3 6.3	6.3	6.3	12.2 13.4	12.8	14.4	15.6 11.6	13.6	12.0
				Middle	5	28.1 28.1	28.1	8.0 8.1	8.1	23.1 23.7	23.4	88.8 89.8	89.3	6.2 6.2	6.2		12.2 12.5	12.4		10.0 11.2	10.6	
				Bottom	9	28.1 28.1	28.1	8.1 8.1	8.1	24.6 24.4	24.5	91.8 90.7	91.3	6.3 6.2	6.3	6.3	18.1 17.8	18.0		13.2 10.4	11.8	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	19:33	Surface	1	28.9 28.9	28.9	8.1 8.1	8.1	22.9 22.9	22.9	85.5 85.9	85.7	6.1 6.1	6.1	6.1	9.4 9.4	9.4	11.5	8.3 8.5	8.4	8.5
				Middle	6	28.9 28.9	28.9	8.1 8.1	8.1	23.0 23.0	23.0	86.5 86.4	86.5	6.0 6.0	6.0		9.6 9.6	9.6		8.7 8.7	8.7	
				Bottom	11	28.9 28.9	28.9	8.1 8.1	8.1	23.5 23.4	23.5	88.4 87.1	87.8	5.9 5.9	5.9		15.5 15.7	15.6		8.3 8.3	8.3	
25-Sep-13	Sunny	Calm	11:25	Surface	1	28.3 28.2	28.3	8.0 8.0	8.0	18.1 18.1	18.1	81.5 81.2	81.4	5.6 5.6	5.6	5.5	5.1 4.9	5.0	6.0	4.9 6.1	5.5	7.2
				Middle	5.5	28.0 28.0	28.0	8.1 8.1	8.1	20.8 20.8	20.8	78.0 76.7	77.4	5.3 5.2	5.3		6.7 6.5	6.6		8.2 8.3	8.3	
				Bottom	10	28.1 28.1	28.1	8.1 8.1	8.1	20.9 20.9	20.9	76.4 75.5	76.0	5.2 5.1	5.2	5.2	6.6 6.3	6.5		8.5 7.2	7.9	
28-Sep-13	Fine	Calm	19:22	Surface	1	27.3 27.3	27.3	8.1 8.1	8.1	23.3 23.3	23.3	91.3 93.5	92.4	6.2 6.3	6.3	6.0	8.0 7.8	7.9	9.3	5.9 7.1	6.5	6.2
				Middle	6.5	27.3 27.3	27.3	8.2 8.2	8.2	28.4 28.5	28.5	86.3 85.9	86.1	5.7 5.7	5.7		5.9 6.3	6.1		6.5 5.6	6.1	
				Bottom	12	27.3 27.3	27.3	8.2 8.2	8.2	29.1 29.1	29.1	80.6 80.9	80.8	5.3 5.3	5.3	5.3	13.6 14.2	13.9		6.6 5.6	6.1	
30-Sep-13	Cloudy	Calm	15:53	Surface	1	27.4 27.4	27.4	8.2 8.2	8.2	29.3 29.2	29.3	81.8 84.0	82.9	5.5 5.6	5.6	5.5	4.3 4.3	4.3	6.2	4.8 4.4	4.6	4.6
				Middle	5.5	27.7 27.6	27.7	8.3 8.3	8.3	30.0 29.8	29.9	82.0 78.9	80.5	5.4 5.2	5.3		5.9 5.8	5.9		6.7 3.9	5.3	
				Bottom	10	27.9 27.6	27.8	8.3 8.3	8.3	31.0 30.7	30.9	78.3 78.2	78.3	5.2 5.2	5.2	5.2	8.4 8.6	8.5		3.8 3.8	3.8	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	09:39	Surface	1	28.1 28.0	28.1	7.7 7.7	7.7	9.4 9.9	9.7	94.8 93.5	94.2	7.0 6.9	7.0	6.3	4.1 4.0	4.1	5.5	1.2 0.5	0.9	1.6
				Middle	3.5	26.4 26.4	26.4	7.8 7.8	7.8	24.0 23.9	24.0	75.6 74.9	75.3	5.6 5.6	5.6		3.5 3.1	3.3		0.8 0.7	0.8	
				Bottom	6	25.8 25.8	25.8	7.8 7.8	7.8	26.3 26.5	26.4	71.5 70.6	71.1	5.3 5.2	5.3	5.3	9.4 9.0	9.2		0.7 5.5	3.1	
4-Sep-13	Cloudy	Moderate	10:48	Surface	1	27.0 27.0	27.0	7.9 7.9	7.9	19.5 19.5	19.5	78.0 77.7	77.9	5.8 5.8	5.8	5.8	3.9 3.8	3.9	7.2	3.4 3.8	3.6	3.7
				Middle	3	27.1 27.1	27.1	7.9 7.9	7.9	22.7 22.7	22.7	75.7 75.6	75.7	5.7 5.6	5.7		2.8 3.2	3.0		3.2 2.5	2.9	
				Bottom	5	26.3 26.3	26.3	7.9 7.9	7.9	29.3 29.3	29.3	66.1 67.1	66.6	4.9 4.9	4.9	4.9	14.6 14.6	14.6		3.5 5.5	4.5	
6-Sep-13	Sunny	Calm	11:56	Surface	1	26.7 26.7	26.7	7.8 7.8	7.8	18.7 18.7	18.7	79.4 82.2	80.8	5.6 5.8	5.7	5.6	4.4 4.3	4.4	9.5	4.3 3.3	3.8	4.0
				Middle	3.5	26.0 26.0	26.0	7.9 7.9	7.9	21.4 21.5	21.5	75.9 75.9	75.9	5.4 5.4	5.4		9.5 10.4	10.0		3.1 5.0	4.1	
				Bottom	6	25.9 25.9	25.9	7.9 7.9	7.9	22.8 22.6	22.7	73.5 73.4	73.5	5.2 5.2	5.2	5.2	14.0 14.3	14.2		2.8 5.5	4.2	
9-Sep-13	Sunny	Moderate	13:38	Surface	1	28.0 27.9	28.0	7.8 7.8	7.8	19.0 19.2	19.1	81.1 80.6	80.9	5.8 5.8	5.8	5.7	2.2 2.3	2.3	5.1	3.5 4.1	3.8	4.0
				Middle	3.5	27.0 26.9	27.0	7.8 7.9	7.9	21.2 23.1	22.2	76.3 76.1	76.2	5.5 5.5	5.5		5.2 5.4	5.3		3.3 4.2	3.8	
				Bottom	6	26.6 26.6	26.6	7.9 8.0	8.0	24.2 25.7	25.0	75.0 74.6	74.8	5.4 5.3	5.4	5.4	7.4 7.9	7.7		3.1 5.5	4.3	
11-Sep-13	Sunny	Moderate	17:22	Surface	1	28.4 28.3	28.4	8.0 8.0	8.0	19.4 19.6	19.5	70.1 68.9	69.5	5.3 5.2	5.3	5.3	4.9 5.2	5.1	5.6	2.9 2.2	2.6	3.0
				Middle	4	27.4 27.3	27.4	8.0 8.0	8.0	25.7 25.8	25.8	72.1 71.2	71.7	5.3 5.3	5.3		5.5 5.7	5.6		2.2 2.8	2.5	
				Bottom	7	27.2 27.2	27.2	8.0 8.0	8.0	26.2 26.2	26.2	69.0 69.4	69.2	5.1 5.1	5.1	5.1	5.9 6.2	6.1		2.3 5.5	3.9	
14-Sep-13	Sunny	Moderate	06:32	Surface	1	27.3 27.3	27.3	7.8 7.8	7.8	16.4 16.1	16.3	90.7 89.3	90.0	6.6 6.5	6.6	6.3	1.4 1.4	1.4	3.6	1.2 1.0	1.1	2.2
				Middle	4	27.0 27.1	27.1	8.0 8.0	8.0	24.6 24.2	24.4	83.6 86.2	84.9	5.8 6.0	5.9		2.4 2.2	2.3		1.2 2.4	1.8	
				Bottom	7	26.9 26.9	26.9	8.0 8.0	8.0	25.1 25.2	25.2	81.2 80.8	81.0	5.6 5.6	5.6	5.6	7.0 7.0	7.0		1.7 5.5	3.6	
16-Sep-13	Sunny	Calm	08:40	Surface	1	27.6 27.6	27.6	8.0 8.0	8.0	21.9 22.0	22.0	90.1 90.1	90.1	6.3 6.3	6.3	6.1	2.2 2.1	2.2	5.3	4.3 3.7	4.0	3.5
				Middle	3.5	27.4 27.5	27.5	8.0 8.0	8.0	24.3 23.0	23.7	81.0 84.3	82.7	5.6 5.9	5.8		5.4 5.4	5.4		2.7 2.2	2.5	
				Bottom	6	27.3 27.3	27.3	8.0 8.0	8.0	25.2 25.3	25.3	78.8 78.6	78.7	5.4 5.4	5.4	5.4	8.3 8.1	8.2		2.3 5.5	3.9	
18-Sep-13	Fine	Moderate	11:40	Surface	1	28.3 28.3	28.3	8.1 8.1	8.1	24.3 24.3	24.3	110.3 109.9	110.1	7.5 7.5	7.5	7.4	8.4 8.4	8.4	12.7	7.0 6.6	6.8	7.3
				Middle	4	28.1 28.1	28.1	8.2 8.2	8.2	26.2 26.1	26.2	109.4 104.5	107.0	7.4 7.1	7.3		12.8 10.3	11.6		6.0 6.6	6.3	
				Bottom	7	28.2 28.1	28.2	8.2 8.2	8.2	26.6 26.7	26.7	111.7 102.0	106.9	7.5 6.9	7.2	7.2	18.4 17.5	18.0		12.0 5.5	8.8	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	15:09	Surface	1	28.5 28.5	28.5	8.0 8.0	8.0	22.0 21.9	22.0	82.2 81.0	81.6	5.7 5.6	5.7	5.7	5.8 6.1	6.0	6.8	7.0 7.2	7.1	7.8
				Middle	4	28.4 28.3	28.4	8.0 8.1	8.1	22.4 24.2	23.3	83.3 83.2	83.3	5.7 5.7	5.7		5.2 6.0	5.6		12.0 6.0	9.0	
				Bottom	7	28.0 28.0	28.0	8.1 8.1	8.1	25.8 25.7	25.8	83.2 82.5	82.9	5.6 5.6	5.6	5.6	8.9 8.6	8.8		9.0 5.5	7.3	
23-Sep-13	Cloudy	Rough	13:51	Surface	1	28.0 28.0	28.0	8.1 8.1	8.1	22.4 22.4	22.4	93.4 94.2	93.8	6.6 6.6	6.6	6.6	10.0 10.0	10.0	10.8	4.0 7.0	5.5	6.1
				Middle	4	27.9 27.9	27.9	8.1 8.1	8.1	22.7 22.7	22.7	92.5 93.7	93.1	6.5 6.6	6.6		10.4 10.4	10.4		4.8 5.7	5.3	
				Bottom	7	27.8 27.8	27.8	8.1 8.1	8.1	23.4 23.4	23.4	91.1 81.4	86.3	6.4 5.6	6.0	6.0	11.9 11.8	11.9		9.5 5.5	7.5	
25-Sep-13	Sunny	Calm	15:59	Surface	1	28.4 28.4	28.4	8.1 8.1	8.1	20.4 20.0	20.2	77.6 77.3	77.5	5.2 5.2	5.2	5.2	5.8 5.1	5.5	8.1	4.8 5.6	5.2	5.4
				Middle	4	28.2 28.2	28.2	8.2 8.1	8.2	21.0 20.8	20.9	77.4 76.9	77.2	5.2 5.2	5.2		4.5 4.1	4.3		6.5 5.6	6.1	
				Bottom	7	27.8 27.8	27.8	8.2 8.2	8.2	25.5 25.6	25.6	74.9 73.9	74.4	5.0 4.9	5.0	5.0	14.7 14.1	14.4		4.0 5.5	4.8	
28-Sep-13	Sunny	Calm	06:18	Surface	1	27.2 27.2	27.2	8.0 8.0	8.0	23.4 23.3	23.4	94.8 94.8	94.8	6.6 6.6	6.6	6.4	2.3 2.2	2.3	3.0	3.7 2.4	3.1	3.1
				Middle	3	27.4 27.4	27.4	8.1 8.1	8.1	27.5 27.6	27.6	91.1 90.7	90.9	6.2 6.2	6.2		2.6 2.5	2.6		2.6 2.9	2.8	
				Bottom	5	27.4 27.4	27.4	8.1 8.1	8.1	28.4 28.3	28.4	89.2 89.1	89.2	6.0 6.0	6.0	6.0	4.2 4.2	4.2		1.3 5.5	3.4	
30-Sep-13	Cloudy	Calm	10:47	Surface	1	26.7 26.7	26.7	8.2 8.2	8.2	27.0 27.1	27.1	82.6 81.3	82.0	5.5 5.5	5.5	5.5	3.7 3.6	3.7	5.4	3.4 3.0	3.2	3.8
				Middle	3.5	26.7 26.9	26.8	8.2 8.2	8.2	27.8 28.6	28.2	82.3 81.3	81.8	5.5 5.4	5.5		3.2 3.2	3.2		3.6 4.0	3.8	
				Bottom	6	27.3 27.3	27.3	8.2 8.2	8.2	29.6 29.6	29.6	81.7 80.7	81.2	5.4 5.3	5.4	5.4	9.5 8.8	9.2		3.2 5.5	4.4	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	16:45	Surface	1	28.5 28.6	28.6	7.9 7.9	7.9	12.7 12.0	12.4	99.4 98.5	99.0	7.2 7.2	7.2	6.7	5.5 5.5	5.5	8.5	4.2 3.8	4.0	3.4
				Middle	3.5	27.2 27.1	27.2	7.8 7.8	7.8	18.4 19.2	18.8	83.4 83.0	83.2	6.2 6.2	6.2		8.3 8.1	8.2		3.2 3.2	3.2	
				Bottom	6	26.3 26.3	26.3	7.8 7.8	7.8	24.5 24.3	24.4	70.5 70.3	70.4	5.2 5.2	5.2	5.2	11.4 11.9	11.7		3.5 2.2	2.9	
4-Sep-13	Cloudy	Moderate	17:22	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	19.6 19.6	19.6	79.9 79.7	79.8	6.0 6.0	6.0	5.6	9.8 9.9	9.9	11.5	2.3 3.9	3.1	2.9
				Middle	3.5	27.0 27.0	27.0	7.8 7.8	7.8	20.8 20.9	20.9	70.1 69.8	70.0	5.2 5.2	5.2		11.4 11.6	11.5		3.1 2.6	2.9	
				Bottom	6	27.0 27.0	27.0	7.8 7.8	7.8	22.2 22.2	22.2	70.5 70.4	70.5	5.2 5.1	5.2	5.2	12.8 13.2	13.0		2.3 3.0	2.7	
6-Sep-13	Fine	Calm	18:13	Surface	1	26.9 26.9	26.9	7.6 7.6	7.6	15.3 15.4	15.4	86.8 87.4	87.1	6.2 6.2	6.2	5.8	7.2 7.7	7.5	11.4	9.8 8.7	9.3	9.9
				Middle	3.5	26.5 26.6	26.6	7.6 7.7	7.7	17.4 17.3	17.4	76.3 77.0	76.7	5.4 5.4	5.4		11.5 11.6	11.6		10.3 11.3	10.8	
				Bottom	6	26.3 26.3	26.3	7.7 7.7	7.7	19.0 18.8	18.9	73.8 73.8	73.8	5.2 5.2	5.2	5.2	15.4 14.6	15.0		9.5 9.8	9.7	
9-Sep-13	Sunny	Moderate	07:15	Surface	1	27.1 27.1	27.1	7.6 7.6	7.6	16.8 16.8	16.8	78.9 78.0	78.5	5.7 5.6	5.7	5.6	2.7 2.5	2.6	4.0	2.9 2.4	2.7	3.0
				Middle	3.5	27.1 27.1	27.1	7.6 7.6	7.6	17.3 17.5	17.4	77.0 76.9	77.0	5.5 5.5	5.5		2.7 3.1	2.9		3.5 2.8	3.2	
				Bottom	6	26.8 26.8	26.8	7.7 7.7	7.7	21.1 21.2	21.2	76.0 76.3	76.2	5.4 5.4	5.4	5.4	6.3 6.5	6.4		3.4 2.5	3.0	
11-Sep-13	Sunny	Moderate	11:41	Surface	1	28.1 28.1	28.1	7.8 7.8	7.8	16.3 16.6	16.5	67.0 67.2	67.1	5.1 5.1	5.1	5.1	4.8 5.1	5.0	7.0	2.2 2.7	2.5	2.8
				Middle	4	27.4 27.4	27.4	8.0 8.0	8.0	24.0 24.1	24.1	67.9 68.4	68.2	5.1 5.1	5.1		6.6 6.7	6.7		2.5 1.0	1.8	
				Bottom	7	27.4 27.4	27.4	8.0 8.0	8.0	23.7 24.1	23.9	67.9 68.0	68.0	5.1 5.1	5.1	5.1	9.1 9.7	9.4		1.2 6.7	4.0	
14-Sep-13	Sunny	Moderate	14:02	Surface	1	28.6 28.5	28.6	7.9 7.9	7.9	14.7 14.8	14.8	92.3 89.5	90.9	6.6 6.4	6.5	6.5	2.1 2.1	2.1	4.9	1.8 2.0	1.9	1.5
				Middle	3.5	27.7 27.6	27.7	7.9 7.9	7.9	18.0 20.4	19.2	91.0 88.7	89.9	6.5 6.2	6.4		4.1 3.9	4.0		1.5 1.2	1.4	
				Bottom	6	27.2 27.2	27.2	8.0 8.0	8.0	22.5 22.7	22.6	78.2 83.7	81.0	5.5 5.9	5.7	5.7	8.6 8.8	8.7		1.6 1.0	1.3	
16-Sep-13	Sunny	Calm	15:31	Surface	1	28.2 28.2	28.2	7.9 7.9	7.9	19.4 19.5	19.5	92.8 92.1	92.5	6.5 6.5	6.5	6.2	4.8 5.1	5.0	8.8	4.2 4.5	4.4	5.0
				Middle	3.5	27.8 27.8	27.8	7.9 7.9	7.9	21.1 21.1	21.1	83.6 83.0	83.3	5.8 5.8	5.8		7.9 7.5	7.7		6.0 5.3	5.7	
				Bottom	6	27.5 27.5	27.5	7.9 7.9	7.9	23.3 22.2	22.8	75.0 75.7	75.4	5.2 5.3	5.3	5.3	14.4 12.8	13.6		4.3 5.7	5.0	
18-Sep-13	Fine	Moderate	16:57	Surface	1	28.2 28.2	28.2	7.9 8.0	8.0	21.7 21.9	21.8	108.8 91.8	100.3	7.5 6.3	6.9	6.8	13.1 13.4	13.3	15.6	8.4 10.0	9.2	10.4
				Middle	3.5	28.2 28.2	28.2	8.0 8.1	8.1	22.6 22.8	22.7	103.3 90.4	96.9	7.1 6.2	6.7		16.7 15.3	16.0		10.0 16.0	13.0	
				Bottom	6	28.2 28.1	28.2	8.1 8.1	8.1	23.4 23.7	23.6	95.6 87.5	91.6	6.6 6.0	6.3	6.3	17.6 17.1	17.4		8.0 10.0	9.0	

Remarks: *DA: Depth-Averaged

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Water Quality Monitoring Results at CS2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	18:33	Surface	1	28.3 28.3	28.3	7.9 7.9	7.9	21.1 22.0	21.6	84.2 85.2	84.7	5.8 5.9	5.9	6.0	8.5 8.3	8.4	9.2	5.3 5.3	5.3	5.5
				Middle	3.5	28.2 28.2	28.2	8.0 8.0	8.0	23.2 23.2	23.2	86.8 86.8	86.8	6.0 6.0	6.0		9.1 8.9	9.0		6.3 5.7	6.0	
				Bottom	6	28.2 28.2	28.2	8.0 8.0	8.0	23.3 23.3	23.3	85.6 85.4	85.5	5.9 5.9	5.9	5.9	10.2 10.3	10.3		5.8 4.8	5.3	
25-Sep-13	Sunny	Calm	12:02	Surface	1	28.2 28.3	28.3	8.1 8.1	8.1	19.9 19.9	19.9	79.2 78.0	78.6	5.4 5.3	5.4	5.4	5.2 5.2	5.2	8.2	3.4 5.6	4.5	5.0
				Middle	4	28.1 28.1	28.1	8.1 8.1	8.1	20.0 20.0	20.0	79.0 77.3	78.2	5.4 5.3	5.4		4.2 4.2	4.2		5.0 5.1	5.1	
				Bottom	7	27.8 27.8	27.8	8.1 8.2	8.2	23.5 23.6	23.6	75.6 73.6	74.6	5.1 4.9	5.0	5.0	15.6 14.9	15.3		5.8 5.0	5.4	
28-Sep-13	Fine	Calm	18:48	Surface	1	27.5 27.5	27.5	8.1 8.1	8.1	21.9 21.9	21.9	102.8 102.6	102.7	7.2 7.2	7.2	7.0	4.5 4.6	4.6	8.4	3.4 3.5	3.5	3.7
				Middle	3	27.4 27.4	27.4	8.1 8.1	8.1	24.6 24.7	24.7	96.8 96.7	96.8	6.7 6.7	6.7		4.9 5.2	5.1		3.4 3.9	3.7	
				Bottom	5	27.4 27.4	27.4	8.1 8.1	8.1	27.6 27.6	27.6	90.1 90.3	90.2	6.1 6.1	6.1	6.1	15.3 15.4	15.4		3.8 3.8	3.8	
30-Sep-13	Cloudy	Calm	16:36	Surface	1	27.0 27.0	27.0	8.2 8.2	8.2	28.2 28.2	28.2	98.5 96.3	97.4	6.6 6.4	6.5	6.5	5.1 5.1	5.1	8.5	4.5 5.4	5.0	6.3
				Middle	3.5	27.0 27.0	27.0	8.2 8.2	8.2	28.3 28.3	28.3	98.0 95.7	96.9	6.5 6.4	6.5		5.7 5.9	5.8		5.7 5.4	5.6	
				Bottom	6	27.2 27.2	27.2	8.2 8.2	8.2	29.5 29.5	29.5	96.4 94.4	95.4	6.4 6.2	6.3	6.3	13.9 15.0	14.5		8.1 8.4	8.3	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	11:37	Surface	1	28.4 28.5	28.5	7.7 7.8	7.8	7.4 7.3	7.4	89.7 90.0	89.9	6.7 6.7	6.7	6.4	5.4 5.3	5.4	5.8	3.7 4.3	4.0	3.8
				Middle	5	26.8 27.2	27.0	7.9 7.8	7.9	21.1 20.9	21.0	81.0 81.9	81.5	6.1 6.1	6.1		3.6 3.4	3.5		3.1 3.6	3.4	
				Bottom	9	25.8 25.8	25.8	7.9 7.9	7.9	27.1 27.1	27.1	67.9 67.9	67.9	5.0 5.0	5.0	5.0	8.3 8.6	8.5		4.0 4.2	4.1	
4-Sep-13	Cloudy	Moderate	13:11	Surface	1	27.0 27.0	27.0	7.9 7.9	7.9	19.3 19.3	19.3	76.6 76.2	76.4	5.8 5.8	5.8	5.6	3.7 3.3	3.5	4.0	3.8 3.3	3.6	3.3
				Middle	4	27.1 27.1	27.1	7.9 7.9	7.9	22.0 21.9	22.0	70.9 71.1	71.0	5.3 5.3	5.3		3.7 3.4	3.6		4.4 3.3	3.9	
				Bottom	7	26.7 26.7	26.7	7.9 7.9	7.9	26.2 26.3	26.3	75.9 75.2	75.6	5.6 5.6	5.6	5.6	4.7 5.2	5.0		3.0 1.7	2.4	
6-Sep-13	Sunny	Calm	13:47	Surface	1	27.0 27.0	27.0	7.8 7.8	7.8	18.8 18.8	18.8	82.0 83.7	82.9	5.8 5.8	5.8	5.6	3.8 4.1	4.0	8.4	3.3 3.5	3.4	3.7
				Middle	5	26.1 26.0	26.1	7.9 7.9	7.9	21.7 22.1	21.9	75.9 74.7	75.3	5.4 5.3	5.4		7.6 7.5	7.6		2.7 4.9	3.8	
				Bottom	9	25.9 25.9	25.9	7.9 7.9	7.9	23.1 23.1	23.1	71.1 70.6	70.9	5.0 5.0	5.0	5.0	13.6 13.4	13.5		3.6 4.0	3.8	
9-Sep-13	Sunny	Moderate	15:33	Surface	1	27.6 27.5	27.6	7.9 7.9	7.9	19.6 19.7	19.7	77.8 76.0	76.9	5.6 5.5	5.6	5.4	2.8 2.8	2.8	5.5	3.8 3.6	3.7	3.4
				Middle	5	26.8 26.8	26.8	7.9 7.9	7.9	22.5 22.8	22.7	72.2 72.2	72.2	5.2 5.2	5.2		5.4 5.3	5.4		2.4 5.2	3.8	
				Bottom	9	26.6 26.6	26.6	8.0 8.0	8.0	24.0 24.0	24.0	71.7 71.6	71.7	5.2 5.2	5.2	5.2	8.2 8.4	8.3		2.7 2.7	2.7	
11-Sep-13	Sunny	Moderate	16:05	Surface	1	28.3 28.3	28.3	8.0 8.0	8.0	17.8 17.8	17.8	70.9 70.9	70.9	5.4 5.4	5.4	5.5	4.8 4.8	4.8	5.9	2.2 2.2	2.2	2.3
				Middle	5	27.4 27.4	27.4	8.0 8.0	8.0	24.7 24.7	24.7	76.1 76.1	76.1	5.6 5.6	5.6		5.0 5.0	5.0		2.9 2.3	2.6	
				Bottom	9	27.3 27.3	27.3	8.0 8.0	8.0	25.4 25.4	25.4	71.7 71.7	71.7	5.3 5.3	5.3	5.3	8.0 8.0	8.0		1.9 2.2	2.1	
14-Sep-13	Sunny	Moderate	08:43	Surface	1	27.3 27.3	27.3	7.8 7.8	7.8	15.4 15.4	15.4	85.9 84.5	85.2	6.3 6.1	6.2	6.1	2.1 2.3	2.2	3.6	0.4 0.4	0.4	0.8
				Middle	4	27.2 27.1	27.2	8.0 8.0	8.0	21.9 23.7	22.8	85.2 83.6	84.4	6.0 5.8	5.9		2.0 2.1	2.1		0.6 1.6	1.1	
				Bottom	7	26.9 26.9	26.9	8.0 8.0	8.0	25.4 25.3	25.4	79.8 79.9	79.9	5.5 5.5	5.5	5.5	6.7 6.1	6.4		0.6 1.3	1.0	
16-Sep-13	Sunny	Calm	10:15	Surface	1	27.6 27.6	27.6	8.0 8.0	8.0	22.2 22.1	22.2	86.7 86.7	86.7	6.0 6.0	6.0	6.0	3.1 2.8	3.0	6.6	3.3 3.4	3.4	3.5
				Middle	5	27.5 27.5	27.5	8.0 8.0	8.0	22.5 22.7	22.6	85.8 86.2	86.0	6.0 6.0	6.0		2.8 2.7	2.8		3.0 4.4	3.7	
				Bottom	9	27.3 27.3	27.3	8.0 8.0	8.0	25.5 25.6	25.6	76.9 77.6	77.3	5.3 5.3	5.3	5.3	14.7 13.5	14.1		2.9 3.6	3.3	
18-Sep-13	Fine	Moderate	12:39	Surface	1	28.4 28.4	28.4	8.3 8.3	8.3	26.3 26.3	26.3	93.9 95.1	94.5	6.5 6.6	6.6	6.5	12.3 12.4	12.4	16.2	11.6 8.0	9.8	31.1
				Middle	4.5	28.2 28.2	28.2	8.3 8.3	8.3	27.3 27.4	27.4	92.0 92.8	92.4	6.4 6.4	6.4		15.4 15.7	15.6		26.0 25.6	25.8	
				Bottom	8	28.1 28.1	28.1	8.3 8.3	8.3	27.6 27.6	27.6	90.8 92.1	91.5	6.3 6.4	6.4	6.4	20.5 20.8	20.7		59.2 56.4	57.8	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	13:29	Surface	1	28.0 27.9	28.0	8.0 8.1	8.1	24.9 25.2	25.1	90.0 89.2	89.6	6.1 6.1	6.1	6.0	7.0 7.1	7.1	14.7	12.8 11.5	12.2	12.0
				Middle	5	27.3 27.3	27.3	8.1 8.1	8.1	27.0 27.1	27.1	86.0 85.6	85.8	5.9 5.8	5.9		14.8 16.7	15.8		14.5 13.7	14.1	
				Bottom	9	27.3 27.3	27.3	8.1 8.1	8.1	27.7 27.6	27.7	85.1 84.7	84.9	5.8 5.8	5.8	5.8	21.9 20.5	21.2		11.8 7.8	9.8	
23-Sep-13	Cloudy	Rough	14:57	Surface	1	28.0 28.1	28.1	8.2 8.2	8.2	22.9 22.9	22.9	88.1 87.4	87.8	6.3 6.2	6.3	6.3	8.9 8.5	8.7	11.6	7.1 7.3	7.2	11.1
				Middle	5	27.9 27.9	27.9	8.2 8.2	8.2	23.7 23.6	23.7	87.3 87.6	87.5	6.2 6.2	6.2		9.4 9.6	9.5		8.8 7.3	8.1	
				Bottom	9	27.7 27.7	27.7	8.2 8.2	8.2	25.0 25.0	25.0	84.9 85.0	85.0	6.0 6.0	6.0	6.0	17.1 15.9	16.5		19.7 16.3	18.0	
25-Sep-13	Sunny	Calm	15:11	Surface	1	28.5 28.5	28.5	8.1 8.1	8.1	19.3 19.1	19.2	86.8 85.0	85.9	6.0 5.9	6.0	5.8	4.1 3.8	4.0	12.1	3.5 4.3	3.9	10.6
				Middle	5	27.8 27.8	27.8	8.2 8.2	8.2	26.7 26.7	26.7	83.3 78.8	81.1	5.6 5.3	5.5		10.9 11.2	11.1		6.7 6.6	6.7	
				Bottom	9	27.8 27.8	27.8	8.2 8.2	8.2	26.8 26.9	26.9	80.5 76.7	78.6	5.4 5.1	5.3	5.3	22.1 20.2	21.2		21.7 20.7	21.2	
28-Sep-13	Sunny	Calm	06:58	Surface	1	27.1 27.0	27.1	8.2 8.2	8.2	25.4 25.4	25.4	90.0 90.0	90.0	6.2 6.2	6.2	6.1	1.9 1.9	1.9	2.0	2.7 2.0	2.4	2.2
				Middle	4	27.5 27.5	27.5	8.2 8.2	8.2	27.4 27.3	27.4	86.2 86.4	86.3	5.9 5.9	5.9		1.8 1.8	1.8		1.9 2.2	2.1	
				Bottom	7	27.5 27.2	27.4	8.2 8.2	8.2	28.2 26.4	27.3	85.7 81.3	83.5	5.8 5.6	5.7	5.7	2.2 2.2	2.2		2.1 2.0	2.1	
30-Sep-13	Cloudy	Calm	09:34	Surface	1	26.6 26.6	26.6	8.2 8.2	8.2	28.1 28.1	28.1	102.4 102.7	102.6	7.0 7.0	7.0	7.1	1.5 1.6	1.6	3.9	1.6 1.9	1.8	2.9
				Middle	4.5	26.8 26.8	26.8	8.2 8.2	8.2	28.5 28.6	28.6	104.0 104.1	104.1	7.1 7.1	7.1		1.4 1.4	1.4		4.3 2.3	3.3	
				Bottom	8	27.3 27.3	27.3	8.2 8.2	8.2	29.7 29.7	29.7	94.8 94.6	94.7	6.4 6.4	6.4	6.4	8.8 8.7	8.8		3.5 3.7	3.6	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	18:38	Surface	1	28.5 28.4	28.5	7.8 7.8	7.8	12.1 12.4	12.3	84.7 84.5	84.6	6.2 6.1	6.2	6.5	5.4 5.0	5.2	5.6	3.8 4.0	3.9	3.9
				Middle	5.5	27.8 27.8	27.8	7.8 7.8	7.8	15.3 15.1	15.2	89.9 89.7	89.8	6.8 6.8	6.8		5.0 5.3	5.2		4.2 3.8	4.0	
				Bottom	10	26.3 26.3	26.3	7.8 7.8	7.8	24.4 24.5	24.5	71.5 71.3	71.4	5.3 5.3	5.3	5.3	6.4 6.5	6.5		3.8 3.8	3.8	
4-Sep-13	Cloudy	Moderate	19:36	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	19.7 19.7	19.7	65.4 65.4	65.4	5.0 5.0	5.0	5.4	9.1 9.1	9.1	10.4	2.3 2.3	2.3	2.7
				Middle	4.5	27.1 27.1	27.1	7.8 7.8	7.8	20.5 20.5	20.5	76.5 76.4	76.5	5.7 5.7	5.7		10.6 10.0	10.3		2.9 2.7	2.8	
				Bottom	8	27.0 27.0	27.0	7.8 7.8	7.8	21.8 21.7	21.8	77.5 77.1	77.3	5.7 5.7	5.7	5.7	11.7 11.9	11.8		3.2 2.8	3.0	
6-Sep-13	Fine	Calm	20:09	Surface	1	26.7 26.7	26.7	7.7 7.7	7.7	16.3 16.3	16.3	83.0 78.7	80.9	5.9 5.6	5.8	5.7	10.8 11.6	11.2	14.7	8.5 6.8	7.7	8.5
				Middle	5.5	26.5 26.5	26.5	7.7 7.7	7.7	18.1 18.2	18.2	76.0 78.7	77.4	5.4 5.5	5.5		15.3 14.5	14.9		9.2 9.5	9.4	
				Bottom	10	26.4 26.4	26.4	7.7 7.7	7.7	18.9 18.6	18.8	77.0 77.5	77.3	5.4 5.5	5.5	5.5	18.2 17.9	18.1		8.3 8.2	8.3	
9-Sep-13	Sunny	Moderate	09:18	Surface	1	27.2 27.2	27.2	7.7 7.7	7.7	16.7 16.8	16.8	78.5 78.7	78.6	5.6 5.6	5.6	5.6	1.9 1.7	1.8	4.0	2.6 4.0	3.3	3.4
				Middle	5.5	27.0 26.9	27.0	7.8 7.8	7.8	19.6 20.1	19.9	78.0 77.3	77.7	5.5 5.5	5.5		4.2 5.0	4.6		3.3 3.2	3.3	
				Bottom	10	26.8 26.8	26.8	7.8 7.8	7.8	21.7 21.7	21.7	75.9 75.7	75.8	5.4 5.3	5.4	5.4	5.8 5.4	5.6		3.2 3.9	3.6	
11-Sep-13	Sunny	Moderate	10:17	Surface	1	28.0 28.0	28.0	7.7 7.7	7.7	16.5 16.5	16.5	69.9 69.9	69.9	5.3 5.3	5.3	5.4	5.6 5.6	5.6	4.6	2.5 2.1	2.3	2.2
				Middle	5	27.8 27.8	27.8	7.8 7.8	7.8	18.1 18.1	18.1	70.5 70.5	70.5	5.4 5.4	5.4		2.4 2.4	2.4		1.7 2.0	1.9	
				Bottom	9	27.6 27.6	27.6	7.9 7.9	7.9	22.4 22.4	22.4	70.2 70.2	70.2	5.3 5.3	5.3	5.3	5.8 5.8	5.8		2.9 1.9	2.4	
14-Sep-13	Sunny	Moderate	16:14	Surface	1	28.4 28.4	28.4	7.9 7.9	7.9	14.9 15.0	15.0	90.1 89.7	89.9	6.4 6.4	6.4	6.4	2.3 2.1	2.2	4.6	3.4 2.0	2.7	2.1
				Middle	4.5	27.6 27.7	27.7	7.9 7.9	7.9	19.0 18.7	18.9	90.5 89.7	90.1	6.4 6.4	6.4		2.7 2.9	2.8		1.4 2.2	1.8	
				Bottom	8	27.1 27.1	27.1	8.0 8.0	8.0	23.5 23.5	23.5	83.1 80.1	81.6	5.8 5.6	5.7	5.7	8.8 9.0	8.9		1.8 1.6	1.7	
16-Sep-13	Sunny	Calm	17:14	Surface	1	28.2 28.1	28.2	7.9 7.9	7.9	19.5 19.6	19.6	88.8 88.2	88.5	6.2 6.2	6.2	6.1	3.5 3.5	3.5	5.8	4.5 4.0	4.3	4.8
				Middle	5.5	27.9 27.7	27.8	8.0 8.0	8.0	21.0 22.0	21.5	85.2 84.0	84.6	6.0 5.9	6.0		5.3 5.9	5.6		5.0 5.0	5.0	
				Bottom	10	27.5 27.5	27.5	8.0 8.0	8.0	24.0 23.9	24.0	75.6 75.9	75.8	5.2 5.3	5.3	5.3	8.4 8.4	8.4		5.2 4.7	5.0	
18-Sep-13	Fine	Moderate	18:26	Surface	1	28.1 28.1	28.1	8.1 8.1	8.1	23.3 23.2	23.3	81.4 81.2	81.3	5.5 5.5	5.5	5.5	11.6 12.1	11.9	14.6	9.2 10.4	9.8	10.6
				Middle	5	28.1 28.1	28.1	8.1 8.1	8.1	23.5 23.7	23.6	80.9 80.8	80.9	5.4 5.4	5.4		13.7 14.4	14.1		10.4 12.4	11.4	
				Bottom	9	28.1 28.1	28.1	8.1 8.1	8.1	23.7 23.8	23.8	80.6 80.4	80.5	5.4 5.4	5.4	5.4	18.7 17.0	17.9		11.2 10.0	10.6	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	20:08	Surface	1	28.3 28.3	28.3	8.0 8.0	8.0	23.0 23.0	23.0	80.1 80.1	80.1	5.5 5.5	5.5	5.5	8.4 8.3	8.4	14.8	11.7 9.5	10.6	10.1
				Middle	5	28.1 28.1	28.1	8.0 8.0	8.0	24.8 24.7	24.8	78.1 79.0	78.6	5.3 5.4	5.4		13.8 13.6	13.7		10.3 9.5	9.9	
				Bottom	9	28.1 28.1	28.1	8.0 8.0	8.0	24.7 24.7	24.7	78.4 78.2	78.3	5.3 5.3	5.3	5.3	22.5 22.1	22.3		11.5 8.2	9.9	
25-Sep-13	Sunny	Calm	10:59	Surface	1	28.1 28.1	28.1	8.0 8.0	8.0	17.6 17.7	17.7	87.2 86.1	86.7	6.2 6.2	6.2	6.0	4.3 3.7	4.0	8.7	3.0 3.1	3.1	6.9
				Middle	5	27.8 27.8	27.8	8.2 8.2	8.2	24.2 23.9	24.1	82.8 82.4	82.6	5.7 5.7	5.7		10.4 8.9	9.7		6.0 6.3	6.2	
				Bottom	9	27.8 27.8	27.8	8.2 8.2	8.2	25.4 25.4	25.4	81.2 79.6	80.4	5.6 5.5	5.6	5.6	12.1 12.8	12.5		12.0 11.0	11.5	
28-Sep-13	Fine	Calm	19:30	Surface	1	27.5 27.5	27.5	8.2 8.2	8.2	22.0 21.9	22.0	86.9 87.0	87.0	6.0 6.0	6.0	5.8	3.2 3.2	3.2	7.2	3.5 3.8	3.7	3.7
				Middle	3	27.4 27.4	27.4	8.2 8.2	8.2	28.3 28.3	28.3	81.8 82.0	81.9	5.5 5.5	5.5		5.6 5.4	5.5		3.8 3.5	3.7	
				Bottom	5	27.4 27.4	27.4	8.2 8.2	8.2	29.6 29.6	29.6	80.3 80.2	80.3	5.4 5.3	5.4	5.4	13.0 12.9	13.0		3.9 3.2	3.6	
30-Sep-13	Cloudy	Calm	15:36	Surface	1	26.6 26.6	26.6	8.2 8.2	8.2	27.5 27.5	27.5	99.7 97.5	98.6	6.9 6.7	6.8	6.8	2.7 2.7	2.7	5.6	2.4 3.0	2.7	3.3
				Middle	4.5	26.8 26.9	26.9	8.2 8.2	8.2	28.4 28.6	28.5	98.6 96.5	97.6	6.7 6.6	6.7		3.8 4.4	4.1		3.4 3.7	3.6	
				Bottom	8	27.2 27.2	27.2	8.2 8.2	8.2	29.5 29.4	29.5	94.2 93.0	93.6	6.3 6.3	6.3	6.3	10.2 9.9	10.1		3.6 3.4	3.5	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	11:57	Surface	1	28.6 28.6	28.6	7.8 7.8	7.8	6.8 6.8	6.8	94.5 93.8	94.2	7.1 7.0	7.1	6.4	5.3 5.4	5.4	5.5	4.1 3.9	4.0	3.9
				Middle	3.5	26.8 26.8	26.8	7.8 7.8	7.8	21.5 21.5	21.5	76.9 75.4	76.2	5.7 5.6	5.7		4.3 4.1	4.2		3.5 4.1	3.8	
				Bottom	6	26.0 26.0	26.0	7.9 7.9	7.9	26.6 26.5	26.6	74.5 72.7	73.6	5.5 5.3	5.4	5.4	6.9 7.0	7.0		4.1 3.8	4.0	
4-Sep-13	Cloudy	Moderate	13:28	Surface	1	27.1 27.1	27.1	7.9 7.9	7.9	19.4 19.4	19.4	72.5 72.1	72.3	5.5 5.5	5.5	5.4	3.8 3.6	3.7	4.6	2.6 2.7	2.7	2.6
				Middle	3	27.1 27.1	27.1	7.9 7.9	7.9	22.1 22.2	22.2	69.3 70.0	69.7	5.2 5.2	5.2		2.9 3.2	3.1		2.5 2.4	2.5	
				Bottom	5	26.3 26.3	26.3	7.9 7.9	7.9	29.2 29.1	29.2	69.4 68.9	69.2	5.1 5.1	5.1	5.1	7.3 6.9	7.1		2.7 2.6	2.7	
6-Sep-13	Sunny	Calm	14:16	Surface	1	26.6 26.7	26.7	7.8 7.8	7.8	19.9 20.2	20.1	75.5 78.7	77.1	5.7 5.6	5.7	5.6	7.4 7.2	7.3	11.2	2.4 4.3	3.4	3.0
				Middle	3.5	26.2 26.2	26.2	7.9 7.9	7.9	22.0 22.2	22.1	76.9 75.3	76.1	5.4 5.3	5.4		10.6 10.7	10.7		2.8 2.8	2.8	
				Bottom	6	25.9 25.9	25.9	7.9 7.9	7.9	23.0 23.0	23.0	71.7 72.2	72.0	5.1 5.1	5.1	5.1	15.4 15.9	15.7		2.2 3.2	2.7	
9-Sep-13	Sunny	Moderate	15:55	Surface	1	27.7 27.6	27.7	7.8 7.8	7.8	19.6 20.2	19.9	75.1 74.7	74.9	5.4 5.4	5.4	5.4	4.1 4.4	4.3	6.3	4.0 2.2	3.1	3.8
				Middle	3.5	26.9 27.0	27.0	7.9 7.9	7.9	22.3 22.1	22.2	73.8 73.4	73.6	5.3 5.3	5.3		6.9 6.8	6.9		5.1 5.7	5.4	
				Bottom	6	26.8 26.8	26.8	7.9 7.9	7.9	22.6 22.7	22.7	72.4 72.1	72.3	5.2 5.2	5.2	5.2	7.9 7.7	7.8		2.4 3.6	3.0	
11-Sep-13	Sunny	Moderate	15:47	Surface	1	28.6 28.3	28.5	7.7 7.9	7.8	17.3 17.8	17.6	79.9 79.3	79.6	6.0 6.0	6.0	6.1	2.1 2.1	2.1	5.6	1.9 4.0	3.0	2.7
				Middle	3.5	27.4 27.4	27.4	7.9 8.0	8.0	24.2 24.6	24.4	90.0 78.5	84.3	6.6 5.8	6.2		5.6 6.1	5.9		2.5 2.4	2.5	
				Bottom	6	27.3 27.3	27.3	8.0 8.0	8.0	25.4 25.4	25.4	83.9 76.2	80.1	6.1 5.6	5.9	5.9	9.1 8.3	8.7		2.6 2.5	2.6	
14-Sep-13	Sunny	Moderate	09:01	Surface	1	27.2 27.2	27.2	7.9 7.9	7.9	21.2 21.2	21.2	84.4 78.6	81.5	6.0 5.6	5.8	5.7	3.0 3.5	3.3	4.9	1.0 1.5	1.3	1.1
				Middle	3	27.1 27.1	27.1	8.0 8.0	8.0	23.8 23.5	23.7	79.6 76.9	78.3	5.5 5.4	5.5		4.6 5.3	5.0		0.7 1.6	1.2	
				Bottom	5	27.0 27.0	27.0	8.0 8.0	8.0	24.4 24.4	24.4	78.3 77.0	77.7	5.4 5.4	5.4	5.4	6.5 6.2	6.4		0.8 0.5	0.7	
16-Sep-13	Sunny	Calm	10:42	Surface	1	27.5 27.5	27.5	8.0 8.0	8.0	24.1 24.0	24.1	81.8 81.1	81.5	5.6 5.6	5.6	5.6	5.0 5.3	5.2	7.5	3.6 2.7	3.2	3.6
				Middle	4	27.4 27.4	27.4	8.0 8.0	8.0	25.1 25.2	25.2	80.7 80.3	80.5	5.6 5.5	5.6		6.8 7.5	7.2		6.6 2.8	4.7	
				Bottom	7	27.4 27.4	27.4	8.0 8.0	8.0	25.1 25.2	25.2	79.8 79.1	79.5	5.5 5.4	5.5	5.5	9.5 10.8	10.2		2.9 3.1	3.0	
18-Sep-13	Fine	Moderate	13:00	Surface	1	28.3 28.3	28.3	8.3 8.3	8.3	26.5 26.5	26.5	95.7 94.9	95.3	6.6 6.6	6.6	6.6	8.9 8.9	8.9	14.9	8.2 8.0	8.1	11.7
				Middle	3.5	28.2 28.2	28.2	8.3 8.3	8.3	26.4 27.4	26.9	95.0 93.2	94.1	6.6 6.4	6.5		16.9 14.5	15.7		8.2 10.8	9.5	
				Bottom	6	28.2 28.2	28.2	8.3 8.3	8.3	26.7 27.6	27.2	95.3 91.6	93.5	6.6 6.3	6.5	6.5	20.3 19.8	20.1		16.4 18.4	17.4	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	13:09	Surface	1	28.3 28.3	28.3	8.0 8.0	8.0	22.2 22.3	22.3	94.9 94.8	94.9	6.5 6.5	6.5	6.5	4.7 5.0	4.9	7.5	8.5 6.3	7.4	9.8
				Middle	3.5	28.0 28.0	28.0	8.0 8.0	8.0	22.7 22.8	22.8	92.6 92.2	92.4	6.4 6.4	6.4		5.5 5.6	5.6		12.8 12.0	12.4	
				Bottom	6	27.4 27.4	27.4	8.0 8.0	8.0	26.2 26.4	26.3	87.4 86.3	86.9	6.0 5.9	6.0	6.0	11.8 12.2	12.0		12.0 7.0	9.5	
23-Sep-13	Cloudy	Rough	15:10	Surface	1	28.0 28.0	28.0	8.2 8.2	8.2	22.9 22.9	22.9	86.6 87.3	87.0	6.2 6.2	6.2	6.2	9.0 8.8	8.9	15.5	7.3 7.5	7.4	8.2
				Middle	3.5	27.9 27.9	27.9	8.2 8.2	8.2	23.5 23.4	23.5	86.0 86.5	86.3	6.1 6.1	6.1		9.9 9.9	9.9		9.2 8.2	8.7	
				Bottom	6	27.8 27.7	27.8	8.2 8.2	8.2	24.1 24.1	24.1	85.0 84.7	84.9	6.0 6.0	6.0	6.0	26.8 28.6	27.7		8.0 8.8	8.4	
25-Sep-13	Sunny	Calm	14:55	Surface	1	28.1 28.0	28.1	8.1 8.2	8.2	21.3 21.3	21.3	92.3 89.2	90.8	6.5 6.3	6.4	6.3	5.5 5.6	5.6	8.8	4.2 3.6	3.9	5.5
				Middle	3.5	27.9 27.9	27.9	8.2 8.2	8.2	23.4 23.4	23.4	89.0 85.2	87.1	6.2 5.9	6.1		7.3 7.2	7.3		5.7 5.4	5.6	
				Bottom	6	27.8 27.8	27.8	8.2 8.2	8.2	26.1 26.3	26.2	85.1 83.6	84.4	5.8 5.7	5.8	5.8	13.3 13.9	13.6		7.7 6.5	7.1	
28-Sep-13	Sunny	Calm	07:08	Surface	1	27.2 27.2	27.2	8.2 8.2	8.2	26.4 26.4	26.4	81.5 81.3	81.4	5.6 5.6	5.6	5.5	2.3 2.2	2.3	2.3	2.9 3.5	3.2	2.8
				Middle	3.5	27.5 27.5	27.5	8.2 8.2	8.2	28.2 28.2	28.2	80.4 80.4	80.4	5.4 5.4	5.4		1.8 1.8	1.8		2.2 5.0	3.6	
				Bottom	6	27.5 27.5	27.5	8.2 8.2	8.2	28.3 28.3	28.3	78.1 78.0	78.1	5.3 5.3	5.3	5.3	2.6 2.7	2.7		1.8 1.6	1.7	
30-Sep-13	Cloudy	Calm	09:21	Surface	1	26.6 26.6	26.6	8.2 8.2	8.2	28.0 28.0	28.0	100.8 102.0	101.4	6.9 7.0	7.0	7.0	2.4 2.9	2.7	3.3	2.5 3.1	2.8	2.8
				Middle	3.5	27.0 26.9	27.0	8.2 8.2	8.2	28.7 28.5	28.6	101.5 102.0	101.8	6.9 6.9	6.9		2.4 2.3	2.4		3.0 2.7	2.9	
				Bottom	6	27.3 27.3	27.3	8.2 8.2	8.2	29.5 29.5	29.5	96.9 99.9	98.4	6.5 6.7	6.6	6.6	5.4 4.4	4.9		3.1 2.1	2.6	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	19:11	Surface	1	29.2 29.3	29.3	7.9 7.9	7.9	9.3 9.1	9.2	102.3 102.0	102.2	7.4 7.4	7.4	7.4	4.7 4.8	4.8	5.8	4.2 4.3	4.3	4.1
				Middle	3.5	28.7 28.9	28.8	7.9 7.9	7.9	11.6 11.3	11.5	101.6 101.3	101.5	7.4 7.3	7.4		5.0 5.5	5.3		3.3 4.5	3.9	
				Bottom	6	27.6 27.7	27.7	7.9 7.9	7.9	17.2 16.7	17.0	79.8 81.8	80.8	5.7 5.9	5.8	5.8	7.5 7.3	7.4		3.3 4.7	4.0	
4-Sep-13	Cloudy	Moderate	19:56	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	19.7 19.7	19.7	66.0 65.8	65.9	5.0 5.0	5.0	5.3	9.5 9.3	9.4	10.3	2.1 1.9	2.0	2.5
				Middle	3.5	27.1 27.1	27.1	7.8 7.8	7.8	20.3 20.4	20.4	74.7 74.8	74.8	5.6 5.6	5.6		10.3 10.1	10.2		2.4 2.8	2.6	
				Bottom	6	27.0 27.0	27.0	7.8 7.8	7.8	21.7 21.4	21.6	75.7 75.6	75.7	5.6 5.6	5.6	5.6	11.2 11.3	11.3		3.1 2.5	2.8	
6-Sep-13	Fine	Calm	20:31	Surface	1	26.7 26.7	26.7	7.7 7.7	7.7	17.7 17.6	17.7	78.2 78.7	78.5	5.5 5.5	5.5	5.5	6.5 6.3	6.4	10.1	11.0 9.8	10.4	9.0
				Middle	3.5	26.7 26.6	26.7	7.8 7.8	7.8	18.7 18.8	18.8	78.3 77.1	77.7	5.5 5.4	5.5		9.9 9.8	9.9		6.7 8.5	7.6	
				Bottom	6	26.7 26.7	26.7	7.8 7.8	7.8	19.6 19.6	19.6	78.8 77.8	78.3	5.5 5.4	5.5	5.5	14.3 13.8	14.1		6.8 11.0	8.9	
9-Sep-13	Sunny	Moderate	09:41	Surface	1	27.2 27.2	27.2	7.8 7.8	7.8	18.7 18.6	18.7	75.0 75.2	75.1	5.3 5.3	5.3	5.3	6.0 6.3	6.2	6.9	3.0 3.4	3.2	3.1
				Middle	3.5	27.1 27.1	27.1	7.8 7.8	7.8	19.4 19.4	19.4	73.7 74.2	74.0	5.2 5.3	5.3		6.0 6.5	6.3		2.8 2.6	2.7	
				Bottom	6	27.0 27.0	27.0	7.8 7.8	7.8	19.8 19.9	19.9	73.6 74.0	73.8	5.2 5.2	5.2	5.2	8.2 8.1	8.2		3.7 3.1	3.4	
11-Sep-13	Sunny	Moderate	09:59	Surface	1	28.0 28.1	28.1	7.6 7.7	7.7	16.3 16.5	16.4	74.6 73.3	74.0	5.6 5.6	5.6	5.7	1.7 1.8	1.8	3.6	2.1 2.6	2.4	2.6
				Middle	3.5	28.0 28.0	28.0	7.7 7.7	7.7	16.5 16.7	16.6	80.3 72.4	76.4	6.1 5.5	5.8		2.6 2.4	2.5		3.2 2.2	2.7	
				Bottom	6	27.5 27.5	27.5	7.9 7.9	7.9	21.9 22.4	22.2	75.5 71.2	73.4	5.6 5.3	5.5	5.5	6.1 6.8	6.5		3.3 2.1	2.7	
14-Sep-13	Sunny	Moderate	16:37	Surface	1	28.8 28.7	28.8	7.9 7.9	7.9	15.8 15.8	15.8	95.0 92.4	93.7	6.7 6.6	6.7	6.5	3.5 3.1	3.3	5.1	2.6 1.7	2.2	2.2
				Middle	3.5	28.1 28.0	28.1	7.9 7.9	7.9	17.9 18.1	18.0	90.9 87.8	89.4	6.4 6.2	6.3		5.2 5.0	5.1		1.4 3.6	2.5	
				Bottom	6	27.6 27.5	27.6	7.9 7.9	7.9	20.0 20.0	20.0	87.8 81.7	84.8	6.2 5.8	6.0	6.0	6.2 7.5	6.9		1.8 2.2	2.0	
16-Sep-13	Sunny	Calm	17:38	Surface	1	28.0 28.1	28.1	8.0 8.0	8.0	22.7 22.4	22.6	88.0 88.4	88.2	6.1 6.1	6.1	6.0	4.2 4.2	4.2	7.0	4.2 4.8	4.5	4.7
				Middle	3.5	27.9 27.9	27.9	8.0 8.0	8.0	23.4 23.2	23.3	86.0 85.5	85.8	5.9 5.9	5.9		6.7 6.7	6.7		4.8 5.0	4.9	
				Bottom	6	27.8 27.8	27.8	8.0 8.0	8.0	24.1 24.0	24.1	83.0 82.3	82.7	5.7 5.7	5.7	5.7	9.9 10.1	10.0		5.0 4.5	4.8	
18-Sep-13	Fine	Moderate	18:40	Surface	1	28.1 28.1	28.1	8.1 8.1	8.1	23.6 23.6	23.6	80.4 94.4	87.4	5.4 6.4	5.9	5.9	13.1 12.7	12.9	14.0	9.2 8.8	9.0	9.3
				Middle	3.5	28.1 28.2	28.2	8.1 8.1	8.1	23.8 23.8	23.8	80.1 93.0	86.6	5.4 6.3	5.9		15.3 14.6	15.0		10.8 9.2	10.0	
				Bottom	6	28.2 28.2	28.2	8.1 8.1	8.1	23.9 23.8	23.9	92.1 92.1	92.1	6.2 6.2	6.2	6.2	14.8 13.5	14.2		10.0 8.0	9.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	20:54	Surface	1	28.3 28.3	28.3	8.0 8.0	8.0	23.0 23.1	23.1	79.2 79.0	79.1	5.4 5.4	5.4	5.4	8.4 9.9	9.2	15.2	4.5 4.8	4.7	4.4
				Middle	3.5	28.0 28.0	28.0	8.0 8.0	8.0	24.8 24.8	24.8	77.2 77.4	77.3	5.3 5.3	5.3		16.5 16.3	16.4		4.0 4.0	4.0	
				Bottom	6	28.0 28.0	28.0	8.0 8.0	8.0	24.9 24.9	24.9	76.8 76.7	76.8	5.2 5.2	5.2	5.2	19.8 20.2	20.0		5.0 3.8	4.4	
25-Sep-13	Sunny	Calm	10:43	Surface	1	28.1 28.1	28.1	8.0 8.0	8.0	18.8 18.8	18.8	89.6 88.9	89.3	6.4 6.3	6.4	6.3	6.7 6.6	6.7	10.9	5.3 6.4	5.9	7.1
				Middle	3	27.9 27.9	27.9	8.1 8.1	8.1	20.4 21.8	21.1	87.9 86.9	87.4	6.2 6.1	6.2		8.5 8.4	8.5		7.3 6.7	7.0	
				Bottom	5	27.8 27.8	27.8	8.1 8.1	8.1	23.7 24.1	23.9	85.3 84.5	84.9	5.9 5.9	5.9	5.9	16.9 18.0	17.5		5.5 11.5	8.5	
28-Sep-13	Fine	Calm	19:40	Surface	1	27.4 27.4	27.4	8.2 8.2	8.2	22.3 22.5	22.4	92.2 92.2	92.2	6.3 6.3	6.3	6.0	3.4 3.4	3.4	7.4	2.7 4.3	3.5	3.4
				Middle	3	27.4 27.4	27.4	8.2 8.2	8.2	28.2 28.3	28.3	86.6 86.8	86.7	5.7 5.7	5.7		6.0 6.0	6.0		3.4 3.5	3.5	
				Bottom	5	27.4 27.4	27.4	8.2 8.2	8.2	29.0 29.0	29.0	84.8 84.6	84.7	5.6 5.6	5.6	5.6	13.0 12.6	12.8		3.5 2.7	3.1	
30-Sep-13	Cloudy	Calm	15:25	Surface	1	26.8 26.8	26.8	8.2 8.2	8.2	27.7 27.8	27.8	98.0 98.0	98.0	6.7 6.7	6.7	6.7	3.6 3.5	3.6	7.2	3.3 2.6	3.0	4.8
				Middle	3.5	27.0 27.0	27.0	8.2 8.2	8.2	28.5 28.5	28.5	97.6 97.5	97.6	6.6 6.6	6.6		4.5 4.6	4.6		4.2 6.2	5.2	
				Bottom	6	27.2 27.2	27.2	8.2 8.2	8.2	29.3 29.3	29.3	95.1 95.1	95.1	6.4 6.4	6.4	6.4	13.7 13.0	13.4		6.0 6.5	6.3	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS3 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	10:08	Surface	1	28.7 28.7	28.7	7.8 7.8	7.8	6.9 6.9	6.9	79.7 79.1	79.4	5.9 5.9	5.9	5.9	5.5 5.6	5.6	6.6	2.4 2.3	2.4	2.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	26.7 26.7	26.7	7.9 7.9	7.9	29.3 29.3	29.3	65.6 65.3	65.5	5.0 5.0	5.0	5.0	7.5 7.4	7.5		2.3 2.1	2.2	
4-Sep-13	Cloudy	Moderate	12:09	Surface	1	27.0 27.0	27.0	7.9 7.9	7.9	16.9 16.9	16.9	82.5 75.7	79.1	6.0 5.5	5.8	5.8	3.8 3.5	3.7	7.1	2.0 2.7	2.4	2.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	27.1 27.1	27.1	7.9 7.9	7.9	29.8 29.8	29.8	68.9 69.4	69.2	5.1 5.1	5.1	5.1	10.3 10.6	10.5		3.3 3.1	3.2	
6-Sep-13	Sunny	Calm	13:06	Surface	1	26.7 26.6	26.7	7.9 7.9	7.9	23.4 23.5	23.5	76.2 73.6	74.9	5.4 5.3	5.4	5.4	7.6 6.3	7.0	14.9	3.9 4.0	4.0	3.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	26.5 26.5	26.5	7.9 7.9	7.9	24.3 24.3	24.3	71.2 72.5	71.9	5.1 5.2	5.2	5.2	22.3 23.1	22.7		3.6 3.9	3.8	
9-Sep-13	Sunny	Moderate	15:27	Surface	1	28.1 28.1	28.1	7.9 7.9	7.9	22.0 22.0	22.0	80.4 80.9	80.7	5.5 5.6	5.6	5.6	5.3 5.3	5.3	6.2	3.5 2.4	3.0	3.2
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	27.0 27.1	27.1	7.9 7.9	7.9	24.0 23.8	23.9	70.1 69.5	69.8	4.9 4.9	4.9	4.9	7.0 7.1	7.1		3.9 2.7	3.3	
11-Sep-13	Sunny	Moderate	16:55	Surface	1	27.9 28.0	28.0	7.9 7.9	7.9	17.5 17.4	17.5	78.2 78.1	78.2	6.0 5.9	6.0	6.0	6.9 6.5	6.7	7.5	1.8 2.2	2.0	2.2
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.2	26.8 26.8	26.8	8.0 8.0	8.0	22.8 22.9	22.9	69.5 69.7	69.6	5.3 5.3	5.3	5.3	8.1 8.2	8.2		2.2 2.4	2.3	
14-Sep-13	Sunny	Moderate	06:43	Surface	1	27.8 27.8	27.8	8.0 8.0	8.0	19.4 19.6	19.5	78.4 78.2	78.3	5.4 5.4	5.4	5.4	3.3 3.4	3.4	5.7	2.7 2.8	2.8	2.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	27.6 27.6	27.6	8.0 8.0	8.0	23.3 23.8	23.6	73.8 76.7	75.3	5.0 5.2	5.1	5.1	8.0 7.7	7.9		2.5 2.0	2.3	
16-Sep-13	Sunny	Calm	08:58	Surface	1	28.0 28.0	28.0	8.0 8.1	8.1	23.3 24.0	23.7	80.3 79.7	80.0	5.4 5.4	5.4	5.4	6.9 6.7	6.8	7.8	8.2 5.0	6.6	5.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	28.0 28.0	28.0	8.1 8.1	8.1	25.6 25.6	25.6	80.1 79.7	79.9	5.4 5.4	5.4	5.4	8.8 8.8	8.8		4.0 4.0	4.0	
18-Sep-13	Fine	Moderate	11:41	Surface	1	28.1 28.0	28.1	8.1 8.1	8.1	25.6 25.8	25.7	98.0 93.1	95.6	6.7 6.4	6.6	6.6	12.2 14.4	13.3	13.4	9.2 10.0	9.6	12.4
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.1	28.0 28.0	28.0	8.1 8.1	8.1	25.9 25.9	25.9	93.9 92.6	93.3	6.4 6.3	6.4	6.4	13.0 13.7	13.4		18.4 12.0	15.2	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS3 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	13:04	Surface	1	29.0 29.0	29.0	8.1 8.1	8.1	23.6 23.6	23.6	77.8 77.5	77.7	5.9 5.9	5.9	5.9	5.8 5.9	5.9	8.1	7.5 7.2	7.4	6.4
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.7	28.9 28.9	28.9	8.1 8.1	8.1	23.6 23.6	23.6	76.2 76.6	76.4	5.8 5.8	5.8	5.8	10.2 10.4	10.3		5.5 5.0	5.3	
23-Sep-13	Cloudy	Rough	14:33	Surface	1	27.3 27.3	27.3	8.1 8.1	8.1	22.2 22.2	22.2	94.6 94.4	94.5	6.6 6.6	6.6	6.6	11.7 10.7	11.2	13.0	7.5 10.3	8.9	9.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.9	27.1 27.1	27.1	8.1 8.1	8.1	22.9 22.9	22.9	92.2 91.8	92.0	6.5 6.4	6.5	6.5	14.9 14.7	14.8		10.3 10.0	10.2	
25-Sep-13	Sunny	Calm	16:13	Surface	1	28.0 28.0	28.0	8.1 8.1	8.1	23.6 23.2	23.4	81.7 81.0	81.4	5.5 5.5	5.5	5.5	14.5 13.1	13.8	16.5	6.0 5.2	5.6	6.2
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.1	27.9 27.9	27.9	8.2 8.1	8.2	25.4 25.4	25.4	76.2 75.6	75.9	5.1 5.0	5.1	5.1	18.7 19.4	19.1		6.9 6.7	6.8	
28-Sep-13	Sunny	Calm	06:07	Surface	1	27.2 27.2	27.2	8.2 8.2	8.2	27.8 27.8	27.8	95.5 94.6	95.1	6.4 6.4	6.4	6.4	4.5 4.4	4.5	4.7	4.4 2.8	3.6	3.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.7	27.2 27.2	27.2	8.2 8.2	8.2	28.4 28.5	28.5	90.5 91.6	91.1	6.1 6.1	6.1	6.1	4.9 4.9	4.9		3.6 2.9	3.3	
30-Sep-13	Cloudy	Calm	09:23	Surface	1	27.5 27.5	27.5	8.3 8.3	8.3	29.6 29.6	29.6	81.2 80.0	80.6	5.4 5.3	5.4	5.4	3.7 3.9	3.8	4.5	4.7 4.8	4.8	4.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.4	27.9 27.9	27.9	8.3 8.3	8.3	30.0 30.1	30.1	78.6 77.0	77.8	5.2 5.1	5.2	5.2	5.1 5.2	5.2		3.1 3.3	3.2	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS3 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	18:12	Surface	1	28.7 28.7	28.7	7.8 7.8	7.8	6.9 6.9	6.9	79.7 79.1	79.4	5.9 5.9	5.9	5.9	5.5 5.6	5.6	6.6	4.2 3.8	4.0	3.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	26.7 26.7	26.7	7.9 7.9	7.9	29.3 29.3	29.3	67.1 66.5	66.8	5.1 5.1	5.1	5.1	7.5 7.4	7.5		3.8 3.7	3.8	
4-Sep-13	Cloudy	Moderate	18:51	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	6.8 6.8	6.8	74.8 74.6	74.7	5.5 5.5	5.5	5.5	5.1 5.4	5.3	7.6	3.1 5.3	4.2	3.4
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.9	27.1 27.1	27.1	7.8 7.8	7.8	29.3 29.3	29.3	69.5 69.6	69.6	5.1 5.2	5.2	5.2	10.0 9.6	9.8		2.7 2.2	2.5	
6-Sep-13	Fine	Calm	19:47	Surface	1	27.3 27.3	27.3	7.8 7.8	7.8	20.3 18.6	19.5	75.8 74.0	74.9	5.4 5.3	5.4	5.4	9.9 10.7	10.3	16.8	9.7 6.7	8.2	7.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.7	27.3 27.3	27.3	7.9 7.9	7.9	22.4 22.2	22.3	74.7 74.4	74.6	5.3 5.3	5.3	5.3	22.2 24.4	23.3		6.8 7.0	6.9	
9-Sep-13	Sunny	Moderate	08:29	Surface	1	27.3 27.3	27.3	7.8 7.8	7.8	19.9 19.9	19.9	73.5 73.3	73.4	5.2 5.2	5.2	5.2	3.4 3.6	3.5	5.8	2.9 2.0	2.5	3.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.8	27.2 27.2	27.2	7.8 7.8	7.8	21.2 21.5	21.4	69.1 68.3	68.7	4.9 4.8	4.9	4.9	7.9 8.2	8.1		6.9 3.2	5.1	
11-Sep-13	Sunny	Moderate	10:36	Surface	1	27.4 27.4	27.4	7.7 7.7	7.7	16.6 16.5	16.6	71.0 71.0	71.0	5.4 5.4	5.4	5.4	6.6 6.9	6.8	7.5	1.7 2.2	2.0	2.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	27.4 27.4	27.4	7.7 7.8	7.8	16.6 16.7	16.7	71.4 71.4	71.4	5.4 5.4	5.4	5.4	8.2 8.2	8.2		2.7 2.2	2.5	
14-Sep-13	Sunny	Moderate	15:42	Surface	1	28.8 29.9	29.4	7.9 7.9	7.9	18.5 15.1	16.8	95.7 97.2	96.5	6.6 6.7	6.7	6.7	5.6 5.3	5.5	10.3	1.8 1.8	1.8	1.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	28.0 28.2	28.1	8.0 8.0	8.0	22.1 20.9	21.5	86.5 88.0	87.3	5.9 6.0	6.0	6.0	15.1 15.0	15.1		1.8 1.8	1.8	
16-Sep-13	Sunny	Calm	17:11	Surface	1	28.8 28.8	28.8	8.1 8.1	8.1	25.0 25.0	25.0	101.2 101.2	101.2	6.9 6.9	6.9	6.9	6.2 6.0	6.1	6.7	5.0 5.0	5.0	5.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.6	28.8 28.7	28.8	8.1 8.1	8.1	25.3 25.4	25.4	82.9 74.6	78.8	5.6 5.1	5.4	5.4	6.7 7.9	7.3		6.0 5.8	5.9	
18-Sep-13	Fine	Moderate	18:24	Surface	1	28.0 28.0	28.0	8.0 8.1	8.1	23.0 23.2	23.1	94.8 93.7	94.3	6.6 6.5	6.6	6.6	10.7 10.1	10.4	10.7	6.6 13.6	10.1	11.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.3	28.1 28.1	28.1	8.1 8.1	8.1	23.6 23.6	23.6	93.5 93.8	93.7	6.5 6.5	6.5	6.5	11.3 10.4	10.9		12.0 13.6	12.8	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS3 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	20:02	Surface	1	29.2 29.2	29.2	8.1 8.1	8.1	23.5 23.5	23.5	86.8 86.7	86.8	5.9 5.9	5.9	5.9	14.1 15.9	15.0	19.4	31.0 30.7	30.9	19.7
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.1	29.2 29.2	29.2	8.1 8.1	8.1	23.6 23.6	23.6	85.9 85.3	85.6	5.9 5.8	5.9	5.9	23.8 23.5	23.7		8.7 8.3	8.5	
25-Sep-13	Sunny	Calm	10:54	Surface	1	28.1 28.1	28.1	8.1 8.1	8.1	21.3 21.3	21.3	77.9 77.4	77.7	5.3 5.2	5.3	5.3	6.1 6.4	6.3	7.7	3.0 4.7	3.9	6.1
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.6	28.1 28.1	28.1	8.1 8.1	8.1	21.4 21.4	21.4	77.1 77.2	77.2	5.2 5.2	5.2	5.2	9.0 9.0	9.0		8.5 7.8	8.2	
28-Sep-13	Fine	Calm	19:41	Surface	1	27.3 27.3	27.3	8.2 8.2	8.2	25.1 25.1	25.1	89.6 88.4	89.0	6.0 5.9	6.0	6.0	5.6 5.3	5.5	9.6	3.4 3.2	3.3	3.7
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.2	27.2 27.2	27.2	8.2 8.2	8.2	28.8 28.8	28.8	84.1 81.4	82.8	5.5 5.4	5.5	5.5	13.5 13.9	13.7		4.8 3.1	4.0	
30-Sep-13	Cloudy	Calm	16:13	Surface	1	27.6 27.6	27.6	8.3 8.3	8.3	30.2 30.1	30.2	81.1 79.3	80.2	5.4 5.3	5.4	5.4	6.1 7.5	6.8	8.8	4.5 6.5	5.5	5.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.3	27.7 27.7	27.7	8.3 8.3	8.3	30.4 30.4	30.4	78.7 77.0	77.9	5.2 5.1	5.2	5.2	10.4 10.9	10.7		5.8 6.7	6.3	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	12:21	Surface	1	28.5 28.7	28.6	7.8 7.8	7.8	6.9 6.8	6.9	92.5 92.0	92.3	6.9 6.9	6.9	6.3	5.0 5.0	5.0	5.2	3.9 3.6	3.8	3.9
				Middle	3.5	26.9 26.9	26.9	7.8 7.8	7.8	20.7 20.2	20.5	74.1 73.2	73.7	5.6 5.5	5.6		4.1 4.0	4.1		3.9 3.8	3.9	
				Bottom	6	25.9 25.9	25.9	7.9 7.9	7.9	26.6 26.7	26.7	68.7 68.3	68.5	5.1 5.0	5.1	5.1	6.2 6.5	6.4		3.6 4.2	3.9	
4-Sep-13	Cloudy	Moderate	13:45	Surface	1	27.1 27.0	27.1	7.9 7.9	7.9	19.6 19.4	19.5	71.1 79.5	75.3	5.4 6.1	5.8	5.6	3.8 3.2	3.5	5.1	4.4 4.2	4.3	3.5
				Middle	4.5	27.1 27.1	27.1	7.9 7.9	7.9	21.4 21.6	21.5	71.1 71.5	71.3	5.3 5.3	5.3		3.6 3.4	3.5		3.7 3.4	3.6	
				Bottom	8	26.4 26.4	26.4	7.9 7.9	7.9	28.9 28.8	28.9	69.7 69.0	69.4	5.1 5.1	5.1	5.1	8.4 8.2	8.3		2.4 2.7	2.6	
6-Sep-13	Sunny	Calm	14:36	Surface	1	26.8 26.8	26.8	7.8 7.8	7.8	18.8 18.8	18.8	81.8 82.4	82.1	5.8 5.8	5.8	5.6	3.9 3.7	3.8	9.1	5.1 3.2	4.2	3.1
				Middle	4	26.1 26.1	26.1	7.9 7.9	7.9	21.3 21.3	21.3	77.1 76.3	76.7	5.4 5.4	5.4		8.9 8.8	8.9		2.4 3.4	2.9	
				Bottom	7	25.9 25.9	25.9	7.8 7.8	7.8	22.5 22.5	22.5	72.8 72.2	72.5	5.1 5.1	5.1	5.1	14.0 15.0	14.5		3.1 1.4	2.3	
9-Sep-13	Sunny	Moderate	16:12	Surface	1	27.6 27.6	27.6	7.8 7.8	7.8	20.1 20.1	20.1	75.1 75.0	75.1	5.4 5.4	5.4	5.4	4.5 5.2	4.9	5.8	6.9 3.9	5.4	3.7
				Middle	3.5	27.0 27.1	27.1	7.9 7.9	7.9	21.9 21.9	21.9	73.8 74.1	74.0	5.3 5.3	5.3		5.3 5.5	5.4		3.2 4.0	3.6	
				Bottom	6	26.8 26.7	26.8	7.9 7.9	7.9	22.7 22.7	22.7	72.7 72.5	72.6	5.3 5.2	5.3	5.3	6.9 7.2	7.1		2.1 2.3	2.2	
11-Sep-13	Sunny	Moderate	15:16	Surface	1	28.3 28.0	28.2	7.7 7.9	7.8	20.2 21.0	20.6	85.8 74.3	80.1	6.3 5.5	5.9	5.9	7.3 6.8	7.1	6.8	2.0 1.9	2.0	2.0
				Middle	3.5	27.8 27.6	27.7	7.9 8.0	8.0	23.5 23.5	23.5	80.5 75.9	78.2	5.9 5.6	5.8		6.3 6.2	6.3		2.4 1.9	2.2	
				Bottom	6	27.4 27.3	27.4	8.0 8.0	8.0	25.3 25.4	25.4	78.4 77.1	77.8	5.7 5.7	5.7	5.7	6.6 7.2	6.9		1.7 1.9	1.8	
14-Sep-13	Sunny	Moderate	09:17	Surface	1	27.2 27.2	27.2	7.9 7.9	7.9	20.4 20.4	20.4	80.3 76.9	78.6	5.7 5.5	5.6	5.5	4.3 4.7	4.5	5.6	1.2 1.0	1.1	1.4
				Middle	4	27.0 27.1	27.1	8.0 8.0	8.0	23.4 23.5	23.5	77.1 77.2	77.2	5.4 5.4	5.4		5.4 5.2	5.3		1.0 2.0	1.5	
				Bottom	7	27.0 27.0	27.0	8.0 8.0	8.0	24.4 24.6	24.5	76.5 76.4	76.5	5.3 5.3	5.3	5.3	7.0 6.9	7.0		1.7 1.5	1.6	
16-Sep-13	Sunny	Calm	11:02	Surface	1	27.6 27.6	27.6	8.0 8.0	8.0	23.7 23.9	23.8	80.5 80.3	80.4	5.6 5.6	5.6	5.6	6.0 5.6	5.8	8.4	2.6 2.1	2.4	2.4
				Middle	3.5	27.4 27.4	27.4	8.0 8.0	8.0	25.2 25.2	25.2	79.7 79.5	79.6	5.5 5.5	5.5		8.3 8.4	8.4		2.5 2.4	2.5	
				Bottom	6	27.4 27.4	27.4	8.0 8.0	8.0	25.2 25.2	25.2	79.1 78.6	78.9	5.4 5.4	5.4	5.4	10.8 11.2	11.0		2.1 2.4	2.3	
18-Sep-13	Fine	Moderate	13:15	Surface	1	28.3 28.3	28.3	8.3 8.3	8.3	27.1 27.0	27.1	81.5 81.9	81.7	5.7 5.7	5.7	5.7	11.6 11.7	11.7	13.1	12.0 12.4	12.2	14.2
				Middle	3.5	28.2 28.3	28.3	8.3 8.3	8.3	27.5 26.5	27.0	79.7 81.0	80.4	5.5 5.6	5.6		13.2 11.6	12.4		16.0 12.8	14.4	
				Bottom	6	28.1 28.2	28.2	8.3 8.3	8.3	27.7 26.8	27.3	79.1 80.8	80.0	5.5 5.6	5.6	5.6	15.5 14.9	15.2		16.0 16.0	16.0	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	12:56	Surface	1	28.3 28.2	28.3	7.9 7.9	7.9	22.6 22.8	22.7	94.4 92.6	93.5	6.5 6.4	6.5	6.4	6.4 6.3	6.4	9.2	9.0 8.2	8.6	9.1
				Middle	4	28.0 28.1	28.1	7.9 7.9	7.9	23.1 23.0	23.1	91.2 91.5	91.4	6.3 6.3	6.3		10.1 9.3	9.7		9.5 9.0	9.3	
				Bottom	7	28.0 28.1	28.1	7.9 7.9	7.9	23.1 23.0	23.1	89.9 90.9	90.4	6.2 6.3	6.3	6.3	11.0 11.9	11.5		9.5 9.2	9.4	
23-Sep-13	Cloudy	Rough	15:24	Surface	1	28.0 28.0	28.0	8.2 8.2	8.2	23.2 23.2	23.2	85.9 85.1	85.5	6.1 6.0	6.1	6.1	8.2 9.0	8.6	12.9	4.8 8.8	6.8	7.4
				Middle	3.5	28.0 28.0	28.0	8.2 8.2	8.2	23.2 23.2	23.2	84.4 83.8	84.1	6.0 6.0	6.0		12.3 14.7	13.5		5.5 8.2	6.9	
				Bottom	6	27.9 27.9	27.9	8.1 8.1	8.1	23.4 23.4	23.4	83.9 83.5	83.7	6.0 5.9	6.0	6.0	16.6 16.3	16.5		9.3 7.5	8.4	
25-Sep-13	Sunny	Calm	14:44	Surface	1	28.0 27.9	28.0	8.1 8.1	8.1	21.0 21.1	21.1	93.9 92.2	93.1	6.6 6.5	6.6	6.5	5.9 6.1	6.0	9.7	13.4 12.0	12.7	16.6
				Middle	3.5	27.8 27.8	27.8	8.1 8.1	8.1	23.1 23.2	23.2	90.0 88.8	89.4	6.3 6.2	6.3		10.6 10.4	10.5		20.0 24.3	22.2	
				Bottom	6	27.8 27.8	27.8	8.1 8.1	8.1	23.4 23.5	23.5	88.4 86.7	87.6	6.2 6.0	6.1	6.1	12.7 12.5	12.6		16.3 13.7	15.0	
28-Sep-13	Sunny	Calm	07:18	Surface	1	27.2 27.2	27.2	8.2 8.2	8.2	26.8 27.0	26.9	80.7 80.7	80.7	5.5 5.5	5.5	5.4	2.8 2.9	2.9	3.8	4.7 2.7	3.7	3.7
				Middle	3	27.4 27.4	27.4	8.2 8.2	8.2	27.9 27.9	27.9	78.1 78.2	78.2	5.2 5.3	5.3		4.1 4.1	4.1		4.2 3.9	4.1	
				Bottom	5	27.4 27.4	27.4	8.2 8.2	8.2	28.1 28.1	28.1	78.5 78.4	78.5	5.3 5.3	5.3	5.3	4.2 4.4	4.3		2.8 3.5	3.2	
30-Sep-13	Cloudy	Calm	09:07	Surface	1	27.3 27.2	27.3	8.1 8.1	8.1	28.8 28.9	28.9	97.1 96.4	96.8	6.6 6.5	6.6	6.6	5.5 5.3	5.4	7.3	15.3 10.7	13.0	12.0
				Middle	3.5	27.3 27.3	27.3	8.1 8.1	8.1	28.9 29.0	29.0	96.4 96.1	96.3	6.5 6.5	6.5		6.5 6.5	6.5		9.2 7.9	8.6	
				Bottom	6	27.3 27.3	27.3	8.2 8.2	8.2	29.1 29.3	29.2	97.8 97.4	97.6	6.6 6.6	6.6	6.6	9.1 11.0	10.1		16.0 13.0	14.5	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	19:32	Surface	1	29.2 29.2	29.2	7.9 7.9	7.9	9.7 9.8	9.8	101.2 100.1	100.7	7.4 7.3	7.4	7.5	4.6 4.6	4.6	6.6	4.7 4.7	4.7	4.5
				Middle	3.5	27.9 28.0	28.0	7.9 7.9	7.9	15.4 15.4	15.4	100.1 98.5	99.3	7.5 7.4	7.5		6.5 6.7	6.6		5.0 4.3	4.7	
				Bottom	6	27.6 27.6	27.6	7.9 7.9	7.9	17.1 16.9	17.0	81.1 80.3	80.7	5.8 5.8	5.8	5.8	8.3 8.7	8.5		4.3 4.0	4.2	
4-Sep-13	Cloudy	Moderate	20:16	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	19.8 19.9	19.9	64.1 64.1	64.1	4.9 4.9	4.9	5.2	9.9 10.0	10.0	10.2	2.8 3.0	2.9	2.7
				Middle	4.5	27.1 27.1	27.1	7.8 7.8	7.8	20.2 20.2	20.2	73.9 73.4	73.7	5.5 5.5	5.5		9.9 10.4	10.2		2.7 2.8	2.8	
				Bottom	8	27.0 27.0	27.0	7.8 7.8	7.8	21.0 20.9	21.0	77.3 77.1	77.2	5.7 5.7	5.7	5.7	10.6 10.4	10.5		1.3 3.3	2.3	
6-Sep-13	Fine	Calm	20:54	Surface	1	26.7 26.7	26.7	7.7 7.7	7.7	17.5 17.5	17.5	77.4 78.4	77.9	5.6 5.7	5.7	5.7	7.5 7.4	7.5	11.6	10.0 7.0	8.5	8.2
				Middle	3.5	26.7 26.7	26.7	7.8 7.8	7.8	18.6 18.4	18.5	77.0 77.8	77.4	5.5 5.6	5.6		10.2 10.4	10.3		8.7 8.0	8.4	
				Bottom	6	26.5 26.5	26.5	7.8 7.8	7.8	20.0 20.0	20.0	68.8 69.2	69.0	4.8 4.8	4.8	4.8	16.5 17.7	17.1		8.7 6.8	7.8	
9-Sep-13	Sunny	Moderate	10:00	Surface	1	27.2 27.1	27.2	7.8 7.8	7.8	18.6 18.8	18.7	75.8 75.3	75.6	5.4 5.4	5.4	5.4	4.9 5.2	5.1	6.1	3.3 3.1	3.2	3.4
				Middle	4	27.0 27.0	27.0	7.8 7.8	7.8	19.6 19.7	19.7	74.9 74.4	74.7	5.3 5.3	5.3		6.4 5.9	6.2		4.1 2.5	3.3	
				Bottom	7	27.0 27.0	27.0	7.8 7.8	7.8	19.9 21.4	20.7	74.3 74.2	74.3	5.3 5.2	5.3	5.3	6.9 7.3	7.1		4.4 3.1	3.8	
11-Sep-13	Sunny	Moderate	09:31	Surface	1	28.1 27.9	28.0	7.7 7.9	7.8	16.3 16.8	16.6	75.4 68.4	71.9	5.7 5.2	5.5	5.4	4.6 4.2	4.4	5.8	2.5 2.7	2.6	3.0
				Middle	3.5	27.5 27.5	27.5	7.9 7.9	7.9	22.3 22.1	22.2	70.1 69.0	69.6	5.2 5.2	5.2		4.6 4.6	4.6		2.9 3.1	3.0	
				Bottom	6	27.2 27.4	27.3	8.0 8.0	8.0	25.5 25.7	25.6	70.1 69.2	69.7	5.2 5.1	5.2	5.2	8.2 8.6	8.4		4.5 2.2	3.4	
14-Sep-13	Sunny	Moderate	16:57	Surface	1	28.7 28.7	28.7	7.9 7.9	7.9	15.8 15.9	15.9	91.6 89.4	90.5	6.5 6.3	6.4	6.3	6.4 6.3	6.4	6.9	2.4 1.9	2.2	2.0
				Middle	4.5	28.0 28.0	28.0	7.9 7.9	7.9	18.2 18.2	18.2	87.4 87.1	87.3	6.2 6.2	6.2		4.8 5.7	5.3		1.2 1.7	1.5	
				Bottom	8	27.5 27.5	27.5	7.9 7.9	7.9	20.4 20.2	20.3	84.1 83.4	83.8	5.9 5.9	5.9	5.9	9.1 9.0	9.1		2.7 2.1	2.4	
16-Sep-13	Sunny	Calm	17:56	Surface	1	28.1 28.1	28.1	8.0 8.0	8.0	21.9 21.8	21.9	90.5 89.7	90.1	6.3 6.2	6.3	6.1	3.5 3.5	3.5	6.4	5.0 5.5	5.3	5.3
				Middle	3.5	27.8 27.8	27.8	8.0 8.0	8.0	23.2 23.4	23.3	84.5 83.5	84.0	5.8 5.8	5.8		6.1 6.2	6.2		5.0 5.2	5.1	
				Bottom	6	27.8 27.8	27.8	8.0 8.0	8.0	24.1 24.0	24.1	81.4 81.8	81.6	5.6 5.6	5.6	5.6	9.4 9.6	9.5		5.5 5.5	5.5	
18-Sep-13	Fine	Moderate	18:59	Surface	1	28.2 28.2	28.2	8.0 8.1	8.1	22.9 23.1	23.0	101.3 97.1	99.2	7.0 6.7	6.9	6.8	11.5 11.2	11.4	15.6	15.2 13.2	14.2	13.1
				Middle	4	28.2 28.2	28.2	8.1 8.1	8.1	24.7 24.9	24.8	98.6 94.1	96.4	6.7 6.4	6.6		16.6 17.5	17.1		14.0 15.2	14.6	
				Bottom	7	28.2 28.2	28.2	8.1 8.1	8.1	25.6 25.6	25.6	96.4 92.4	94.4	6.5 6.3	6.4	6.4	18.3 18.5	18.4		10.4 10.4	10.4	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	21:19	Surface	1	28.2 28.2	28.2	8.0 8.0	8.0	23.0 23.0	23.0	75.4 74.9	75.2	5.2 5.1	5.2	5.2	13.3 11.8	12.6	15.6	8.3 9.8	9.1	8.1
				Middle	3.5	28.3 28.3	28.3	8.0 8.0	8.0	23.0 23.0	23.0	75.1 75.0	75.1	5.1 5.1	5.1		13.0 12.6	12.8		7.0 6.3	6.7	
				Bottom	6	28.3 28.3	28.3	8.0 8.0	8.0	23.2 23.2	23.2	75.4 74.8	75.1	5.2 5.1	5.2	5.2	21.3 21.7	21.5		8.3 8.5	8.4	
25-Sep-13	Sunny	Calm	10:29	Surface	1	27.9 27.9	27.9	8.0 8.0	8.0	20.8 20.8	20.8	90.9 91.5	91.2	6.4 6.5	6.5	6.4	7.5 6.4	7.0	13.7	3.7 4.7	4.2	11.2
				Middle	4	27.7 27.7	27.7	8.0 8.0	8.0	21.4 21.5	21.5	90.0 89.8	89.9	6.3 6.3	6.3		13.6 15.0	14.3		9.7 14.0	11.9	
				Bottom	7	27.7 27.7	27.7	8.0 8.1	8.1	21.5 21.6	21.6	89.7 89.4	89.6	6.3 6.3	6.3	6.3	19.0 20.5	19.8		17.7 17.3	17.5	
28-Sep-13	Fine	Calm	19:51	Surface	1	27.4 27.4	27.4	8.2 8.2	8.2	24.3 24.5	24.4	80.3 80.4	80.4	5.4 5.4	5.4	5.3	4.5 4.6	4.6	7.6	4.9 6.9	5.9	7.0
				Middle	3	27.4 27.4	27.4	8.2 8.2	8.2	27.3 27.3	27.3	77.1 77.5	77.3	5.1 5.1	5.1		8.1 8.8	8.5		6.4 7.7	7.1	
				Bottom	5	27.4 27.4	27.4	8.2 8.2	8.2	27.8 27.8	27.8	76.3 76.3	76.3	5.0 5.0	5.0	5.0	9.6 9.7	9.7		9.0 7.1	8.1	
30-Sep-13	Cloudy	Calm	15:12	Surface	1	27.0 27.0	27.0	8.1 8.2	8.2	27.7 27.8	27.8	99.6 98.1	98.9	6.8 6.7	6.8	6.8	4.1 4.0	4.1	8.0	7.8 8.3	8.1	12.2
				Middle	3.5	27.2 27.2	27.2	8.2 8.2	8.2	28.8 28.9	28.9	99.7 98.6	99.2	6.7 6.7	6.7		8.8 9.1	9.0		11.2 13.0	12.1	
				Bottom	6	27.2 27.2	27.2	8.2 8.2	8.2	29.1 29.1	29.1	99.0 98.2	98.6	6.7 6.6	6.7	6.7	10.7 10.9	10.8		19.3 13.2	16.3	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	10:55	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	5.6	-	-	2.4
						-		-		-		-		-			-			-		
				Middle	1.4	28.5	28.5	7.8	7.8	6.8	6.8	74.0	74.3	5.5	5.5		5.5	5.6		2.5	2.4	
						28.5		7.8		6.8		74.5		5.5			5.6			2.2		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
4-Sep-13	Cloudy	Moderate	12:55	Surface	-	-	-	-	-	-	-	-	-	-	-	5.9	-	-	5.4	-	-	3.2
						-		-		-		-		-			-			-		
				Middle	1	27.0	27.0	7.9	7.9	16.7	16.7	79.5	80.0	5.8	5.9		5.4	5.4		3.7	3.2	
						27.0		7.9		16.7		80.4		5.9			5.4			2.6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
6-Sep-13	Sunny	Calm	14:15	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	8.9	-	-	3.4
						-		-		-		-		-			-			-		
				Middle	1	27.1	27.1	7.9	7.9	22.7	22.7	76.2	76.4	5.4	5.5		8.9	8.9		3.4	3.4	
						27.1		7.9		22.7		76.6		5.5			8.8			3.4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
9-Sep-13	Sunny	Moderate	14:10	Surface	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	4.9	-	-	2.3
						-		-		-		-		-			-			-		
				Middle	1	28.1	28.1	7.9	7.9	21.5	21.6	82.8	82.4	5.8	5.8		5.0	4.9		2.3	2.3	
						28.1		7.9		21.6		82.0		5.7			4.8			2.3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
11-Sep-13	Sunny	Moderate	15:22	Surface	-	-	-	-	-	-	-	-	-	-	-	6.2	-	-	3.8	-	-	2.4
						-		-		-		-		-			-			-		
				Middle	0.9	27.8	27.8	7.9	7.9	17.3	17.3	81.6	81.8	6.2	6.2		3.7	3.8		2.8	2.4	
						27.8		7.9		17.2		81.9		6.2			3.9			1.9		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
14-Sep-13	Sunny	Moderate	07:50	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	2.9	-	-	2.3
						-		-		-		-		-			-			-		
				Middle	1	27.7	27.8	8.0	8.0	19.9	19.9	79.7	79.8	5.5	5.5		2.9	2.9		2.7	2.3	
						27.8		8.0		19.9		79.8		5.5			2.8			1.8		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
16-Sep-13	Sunny	Calm	09:43	Surface	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	3.1	-	-	3.7
						-		-		-		-		-			-			-		
				Middle	1.4	28.1	28.1	8.1	8.1	23.4	23.4	79.9	79.8	5.4	5.4		3.1	3.1		4.0	3.7	
						28.1		8.1		23.4		79.7		5.4			3.0			3.4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
18-Sep-13	Fine	Moderate	13:00	Surface	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	13.7	-	-	17.8
						-		-		-		-		-			-			-		
				Middle	1.3	28.1	28.1	8.2	8.2	26.1	26.1	94.9	95.5	6.5	6.5		13.9	13.7		17.6	17.8	
						28.1		8.2		26.1		96.0		6.5			13.5			18.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	14:40	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.6	- -	-	6.0	- -	-	4.2
				Middle	1.4	29.0 29.0	29.0	8.1 8.1	8.1	23.9 23.9	23.9	74.0 72.7	73.4	5.6 5.5	5.6		6.1 5.8	6.0		4.7 3.7	4.2	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
23-Sep-13	Cloudy	Rough	16:01	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.5	- -	-	8.5	- -	-	9.3
				Middle	1.2	27.4 27.4	27.4	8.2 8.2	8.2	21.9 21.9	21.9	93.3 93.3	93.3	6.5 6.5	6.5		8.4 8.5	8.5		10.3 8.2	9.3	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
25-Sep-13	Sunny	Calm	14:56	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.6	- -	-	3.7	- -	-	3.5
				Middle	1.2	28.5 28.6	28.6	7.9 7.9	7.9	19.5 19.2	19.4	83.8 81.5	82.7	5.7 5.5	5.6		4.0 3.4	3.7		3.9 3.1	3.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
28-Sep-13	Sunny	Calm	07:09	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.1	- -	-	1.7	- -	-	2.5
				Middle	0.9	27.0 27.0	27.0	8.2 8.2	8.2	27.3 27.3	27.3	90.5 89.8	90.2	6.1 6.1	6.1		1.7 1.7	1.7		2.7 2.3	2.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
30-Sep-13	Cloudy	Calm	10:03	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.4	- -	-	1.3	- -	-	2.2
				Middle	1.4	27.3 27.3	27.3	8.3 8.3	8.3	29.4 29.5	29.5	81.5 80.6	81.1	5.4 5.4	5.4		1.2 1.3	1.3		1.8 2.6	2.2	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	17:28	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	6.6	-	-	4.0
						-		-		-		-		-			-			-		
				Middle	1	29.6	29.6	8.0	8.0	12.2	12.2	74.0	73.9	5.5	5.5		6.9	6.6		4.7	4.0	
						29.6		8.0		12.2		73.7		5.5			6.3			3.3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
4-Sep-13	Cloudy	Moderate	18:04	Surface	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	6.3	-	-	2.8
						-		-		-		-		-			-			-		
				Middle	1.1	27.1	27.1	7.8	7.8	12.8	12.8	68.4	69.0	5.1	5.2		6.3	6.3		2.9	2.8	
						27.1		7.8		12.8		69.5		5.2			6.2			2.6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
6-Sep-13	Fine	Calm	18:35	Surface	-	-	-	-	-	-	-	-	-	-	-	5.9	-	-	6.9	-	-	7.0
						-		-		-		-		-			-			-		
				Middle	0.7	27.5	27.5	7.7	7.7	17.8	17.8	82.4	82.3	5.9	5.9		7.1	6.9		8.5	7.0	
						27.5		7.7		17.8		82.1		5.9			6.7			5.5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
9-Sep-13	Sunny	Moderate	09:44	Surface	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-	4.7	-	-	3.1
						-		-		-		-		-			-			-		
				Middle	0.6	27.4	27.4	7.8	7.8	20.3	20.3	73.7	73.6	5.3	5.3		4.5	4.7		3.2	3.1	
						27.4		7.8		20.3		73.4		5.3			4.9			3.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
11-Sep-13	Sunny	Moderate	12:13	Surface	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	3.6	-	-	2.9
						-		-		-		-		-			-			-		
				Middle	1.4	27.5	27.5	7.7	7.7	15.8	15.8	70.6	70.6	5.4	5.4		3.5	3.6		3.0	2.9	
						27.5		7.7		15.8		70.6		5.4			3.6			2.7		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
14-Sep-13	Sunny	Moderate	14:30	Surface	-	-	-	-	-	-	-	-	-	-	-	7.0	-	-	3.1	-	-	3.1
						-		-		-		-		-			-			-		
				Middle	0.6	29.7	29.7	7.9	7.9	14.6	14.6	100.0	101.3	6.9	7.0		3.2	3.1		3.4	3.1	
						29.7		7.9		14.6		102.6		7.0			3.0			2.7		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
16-Sep-13	Sunny	Calm	16:27	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	6.6	-	-	4.8
						-		-		-		-		-			-			-		
				Middle	1	28.6	28.6	8.0	8.0	23.0	23.0	80.7	80.5	5.5	5.5		6.9	6.6		4.5	4.8	
						28.6		8.0		23.0		80.3		5.5			6.2			5.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
18-Sep-13	Fine	Moderate	17:15	Surface	-	-	-	-	-	-	-	-	-	-	-	6.3	-	-	11.8	-	-	10.4
						-		-		-		-		-			-			-		
				Middle	0.7	28.0	28.0	8.0	8.0	22.7	22.8	90.2	90.0	6.3	6.3		12.4	11.8		10.4	10.4	
						28.0		8.0		22.8		89.8		6.2			11.2			10.4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	18:29	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.9	- -	-	9.4	- -	-	34.5
				Middle	1	28.9 28.9	28.9	8.1 8.1	8.1	23.0 23.0	23.0	84.4 84.8	84.6	5.8 5.9	5.9		9.6 9.1	9.4		36.3 32.7	34.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
25-Sep-13	Sunny	Calm	11:56	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.5	- -	-	4.5	- -	-	3.0
				Middle	0.8	28.2 28.2	28.2	8.0 8.0	8.0	18.6 18.8	18.7	80.9 79.9	80.4	5.5 5.5	5.5		4.4 4.6	4.5		3.3 2.6	3.0	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
28-Sep-13	Fine	Calm	18:42	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.5	- -	-	7.0	- -	-	5.1
				Middle	1.3	27.3 27.3	27.3	8.1 8.1	8.1	23.5 23.5	23.5	81.5 78.7	80.1	5.6 5.4	5.5		6.9 7.0	7.0		5.1 5.1	5.1	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
30-Sep-13	Cloudy	Calm	15:30	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.1	- -	-	3.6	- -	-	3.7
				Middle	1.3	27.4 27.4	27.4	8.2 8.2	8.2	29.5 29.5	29.5	92.3 91.1	91.7	6.1 6.1	6.1		3.6 3.6	3.6		3.8 3.6	3.7	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	10:03	Surface	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	5.4	-	-	2.5
						-		-		-		-		-			-			-		
				Middle	1.1	28.6	28.6	7.9	7.9	12.1	12.1	75.0	74.9	5.6	5.6		5.4	5.4		2.4	2.5	
						28.6		7.9		12.1		74.8		5.5			5.4			2.6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
4-Sep-13	Cloudy	Moderate	12:08	Surface	-	-	-	-	-	-	-	-	-	-	-	6.1	-	-	3.4	-	-	3.1
						-		-		-		-		-			-			-		
				Middle	1	27.0	27.0	7.9	7.9	12.9	12.9	81.0	82.8	5.9	6.1		3.5	3.4		2.9	3.1	
						27.0		7.9		12.9		84.6		6.2			3.3			3.3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
6-Sep-13	Sunny	Calm	12:54	Surface	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	11.4	-	-	3.8
						-		-		-		-		-			-			-		
				Middle	0.8	27.1	27.2	7.8	7.9	21.9	21.9	78.4	78.0	5.6	5.6		11.7	11.4		3.7	3.8	
						27.2		7.9		21.8		77.6		5.5			11.0			3.9		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
9-Sep-13	Sunny	Moderate	15:39	Surface	-	-	-	-	-	-	-	-	-	-	-	5.9	-	-	5.9	-	-	2.9
						-		-		-		-		-			-			-		
				Middle	0.8	28.1	28.1	7.9	7.9	21.6	21.6	84.6	84.3	5.9	5.9		5.9	5.9		2.2	2.9	
						28.1		7.9		21.6		84.0		5.8			5.9			3.6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
11-Sep-13	Sunny	Moderate	17:05	Surface	-	-	-	-	-	-	-	-	-	-	-	6.7	-	-	6.6	-	-	2.4
						-		-		-		-		-			-			-		
				Middle	0.7	28.4	28.5	7.9	7.9	18.2	18.1	87.9	87.9	6.7	6.7		6.3	6.6		2.4	2.4	
						28.5		7.9		17.9		87.8		6.7			6.9			2.4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
14-Sep-13	Sunny	Moderate	06:33	Surface	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	3.9	-	-	2.6
						-		-		-		-		-			-			-		
				Middle	0.8	27.7	27.7	8.0	8.0	19.7	19.7	78.1	78.2	5.4	5.4		4.0	3.9		3.5	2.6	
						27.7		8.0		19.6		78.2		5.4			3.8			1.7		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
16-Sep-13	Sunny	Calm	08:53	Surface	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	5.0	-	-	6.5
						-		-		-		-		-			-			-		
				Middle	1.1	28.1	28.1	8.0	8.0	23.0	23.1	79.3	79.6	5.3	5.4		4.9	5.0		7.4	6.5	
						28.1		8.0		23.1		79.8		5.4			5.0			5.6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
18-Sep-13	Fine	Moderate	11:29	Surface	-	-	-	-	-	-	-	-	-	-	-	6.2	-	-	11.8	-	-	9.3
						-		-		-		-		-			-			-		
				Middle	1	28.1	28.1	8.1	8.1	25.3	25.4	89.8	90.6	6.1	6.2		11.9	11.8		8.2	9.3	
						28.1		8.1		25.4		91.4		6.3			11.7			10.4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	12:58	Surface	-	-	-	-	-	-	-	-	-	-	-	6.0	-	-	8.1	-	-	3.4
						-		-		-		-		-			-			-		
				Middle	0.8	29.2	29.3	8.1	8.1	23.6	23.6	78.3	78.3	6.0	6.0		8.1	8.1		3.8	3.4	
						29.3		8.1		23.5		78.3		6.0			8.1			3.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
23-Sep-13	Cloudy	Rough	14:24	Surface	-	-	-	-	-	-	-	-	-	-	-	6.7	-	-	12.5	-	-	9.6
						-		-		-		-		-			-			-		
				Middle	0.9	27.5	27.5	8.1	8.1	22.3	22.3	95.4	95.4	6.7	6.7		12.8	12.5		9.7	9.6	
						27.5		8.1		22.3		95.3		6.7			12.2			9.5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
25-Sep-13	Sunny	Calm	16:25	Surface	-	-	-	-	-	-	-	-	-	-	-	5.2	-	-	13.2	-	-	23.8
						-		-		-		-		-			-			-		
				Middle	1	28.3	28.3	8.1	8.1	21.9	21.9	77.3	77.5	5.2	5.2		13.2	13.2		24.3	23.8	
						28.3		8.1		21.9		77.6		5.2			13.1			23.3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
28-Sep-13	Sunny	Calm	05:58	Surface	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	5.6	-	-	3.8
						-		-		-		-		-			-			-		
				Middle	0.6	26.8	26.8	8.1	8.2	24.4	24.4	77.6	78.1	5.3	5.4		6.1	5.6		3.6	3.8	
						26.8		8.2		24.4		78.6		5.4			5.0			3.9		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
30-Sep-13	Cloudy	Calm	09:13	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	9.1	-	-	4.5
						-		-		-		-		-			-			-		
				Middle	0.9	27.7	27.8	8.3	8.3	29.0	29.1	82.6	83.0	5.5	5.5		8.5	9.1		4.4	4.5	
						27.8		8.3		29.2		83.4		5.5			9.6			4.5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	18:22	Surface	-	-	-	-	-	-	-	-	-	-	-	5.7	-	-	10.3	-	-	4.1
						-		-		-		-		-			-			-		
				Middle	0.7	29.5	29.5	8.1	8.1	15.9	16.0	78.5	78.3	5.6	5.7		10.3	10.3		4.2	4.1	
						29.5		8.1		16.0		78.0		5.7			10.3			4.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
4-Sep-13	Cloudy	Moderate	19:10	Surface	-	-	-	-	-	-	-	-	-	-	-	5.4	-	-	10.3	-	-	3.9
						-		-		-		-		-			-			-		
				Middle	1.1	27.1	27.1	7.9	7.9	15.8	15.8	72.7	72.3	5.4	5.4		10.0	10.3		3.6	3.9	
						27.1		7.9		15.8		71.9		5.3			10.5			4.1		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
6-Sep-13	Fine	Calm	20:01	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	9.5	-	-	11.1
						-		-		-		-		-			-			-		
				Middle	0.8	27.4	27.4	7.9	7.9	20.9	20.9	78.1	77.6	5.5	5.5		9.8	9.5		10.7	11.1	
						27.4		7.8		20.9		77.0		5.4			9.2			11.5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
9-Sep-13	Sunny	Moderate	08:16	Surface	-	-	-	-	-	-	-	-	-	-	-	5.9	-	-	5.4	-	-	2.5
						-		-		-		-		-			-			-		
				Middle	0.7	27.5	27.5	7.7	7.7	19.6	19.6	83.6	83.3	5.9	5.9		5.4	5.4		2.2	2.5	
						27.5		7.7		19.6		82.9		5.9			5.4			2.7		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
11-Sep-13	Sunny	Moderate	10:25	Surface	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	6.8	-	-	3.7
						-		-		-		-		-			-			-		
				Middle	0.8	27.4	27.4	7.8	7.8	18.8	18.9	74.0	74.1	5.6	5.6		6.9	6.8		4.2	3.7	
						27.4		7.8		18.9		74.1		5.6			6.7			3.2		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
14-Sep-13	Sunny	Moderate	15:56	Surface	-	-	-	-	-	-	-	-	-	-	-	6.4	-	-	13.8	-	-	10.9
						-		-		-		-		-			-			-		
				Middle	0.7	29.4	29.4	8.0	8.0	19.3	19.4	95.1	93.2	6.5	6.4		14.0	13.8		11.0	10.9	
						29.4		8.0		19.4		91.2		6.3			13.5			10.8		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
16-Sep-13	Sunny	Calm	17:20	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	13.3	-	-	5.4
						-		-		-		-		-			-			-		
				Middle	0.6	29.3	29.3	8.1	8.1	22.4	22.4	81.0	80.9	5.5	5.5		12.7	13.3		5.5	5.4	
						29.3		8.1		22.3		80.8		5.5			13.8			5.3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
18-Sep-13	Fine	Moderate	18:37	Surface	-	-	-	-	-	-	-	-	-	-	-	6.7	-	-	16.7	-	-	8.5
						-		-		-		-		-			-			-		
				Middle	0.4	28.0	28.0	8.1	8.1	23.6	23.6	96.9	96.8	6.7	6.7		16.5	16.7		8.8	8.5	
						28.0		8.1		23.6		96.7		6.7			16.9			8.2		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	20:11	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.5	- -	-	19.8	- -	-	28.5
				Middle	0.6	29.0 29.0	29.0	8.1 8.1	8.1	23.9 23.9	23.9	80.0 80.6	80.3	5.5 5.5	5.5		19.8 19.8	19.8		29.0 28.0	28.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
25-Sep-13	Sunny	Calm	10:33	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.1	- -	-	9.6	- -	-	3.6
				Middle	0.6	28.0 28.0	28.0	8.1 8.1	8.1	23.0 23.0	23.0	90.6 90.3	90.5	6.1 6.1	6.1		9.9 9.2	9.6		3.9 3.3	3.6	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
28-Sep-13	Fine	Calm	19:48	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.6	- -	-	7.0	- -	-	4.8
				Middle	1.1	27.4 27.4	27.4	8.2 8.2	8.2	23.1 23.2	23.2	81.9 83.9	82.9	5.5 5.7	5.6		7.3 6.7	7.0		4.7 4.8	4.8	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
30-Sep-13	Cloudy	Calm	16:28	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.4	- -	-	9.9	- -	-	6.5
				Middle	0.7	27.5 27.5	27.5	8.2 8.2	8.2	27.6 27.5	27.6	80.3 79.9	80.1	5.4 5.3	5.4		10.2 9.5	9.9		7.3 5.7	6.5	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR3 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	09:49	Surface	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	6.4	-	-	3.6
						-		-		-		-		-			-			-		
				Middle	1.1	28.5	28.5	8.0	8.0	14.4	14.4	86.6	86.8	6.4	6.5		6.5	6.4		4.3	3.6	
						28.5		8.0		14.3		87.0		6.5			6.3			2.8		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
4-Sep-13	Cloudy	Moderate	11:55	Surface	-	-	-	-	-	-	-	-	-	-	-	6.6	-	-	3.5	-	-	1.9
						-		-		-		-		-			-			-		
				Middle	1.1	27.0	27.0	7.9	7.9	14.9	14.9	91.6	89.8	6.7	6.6		3.5	3.5		2.4	1.9	
						27.0		7.9		14.9		87.9		6.4			3.5			1.4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
6-Sep-13	Sunny	Calm	12:35	Surface	-	-	-	-	-	-	-	-	-	-	-	6.6	-	-	6.9	-	-	4.5
						-		-		-		-		-			-			-		
				Middle	0.8	27.2	27.2	7.8	7.8	19.8	19.8	92.2	91.9	6.6	6.6		7.0	6.9		4.5	4.5	
						27.2		7.8		19.8		91.5		6.5			6.8			4.4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
9-Sep-13	Sunny	Moderate	16:17	Surface	-	-	-	-	-	-	-	-	-	-	-	6.0	-	-	4.2	-	-	2.6
						-		-		-		-		-			-			-		
				Middle	0.8	28.3	28.3	7.9	7.9	20.3	20.3	85.8	85.2	6.0	6.0		4.1	4.2		2.9	2.6	
						28.3		7.9		20.3		84.6		5.9			4.2			2.3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
11-Sep-13	Sunny	Moderate	17:27	Surface	-	-	-	-	-	-	-	-	-	-	-	6.3	-	-	6.5	-	-	3.0
						-		-		-		-		-			-			-		
				Middle	0.7	29.0	29.0	7.9	7.9	17.9	17.9	83.2	83.2	6.3	6.3		6.5	6.5		3.2	3.0	
						29.0		7.9		17.9		83.2		6.3			6.5			2.8		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
14-Sep-13	Sunny	Moderate	06:15	Surface	-	-	-	-	-	-	-	-	-	-	-	6.3	-	-	3.5	-	-	3.9
						-		-		-		-		-			-			-		
				Middle	0.8	28.2	28.2	7.9	7.9	17.9	17.9	87.1	87.4	6.2	6.3		3.5	3.5		3.2	3.9	
						28.1		7.9		17.9		87.7		6.3			3.4			4.5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
16-Sep-13	Sunny	Calm	08:37	Surface	-	-	-	-	-	-	-	-	-	-	-	6.6	-	-	3.6	-	-	6.0
						-		-		-		-		-			-			-		
				Middle	1	28.7	28.7	8.0	8.0	20.4	20.4	97.0	97.0	6.6	6.6		3.9	3.6		7.0	6.0	
						28.7		8.0		20.4		96.9		6.5			3.3			5.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
18-Sep-13	Fine	Moderate	11:06	Surface	-	-	-	-	-	-	-	-	-	-	-	7.1	-	-	4.6	-	-	16.4
						-		-		-		-		-			-			-		
				Middle	1.4	28.1	28.1	7.9	8.0	22.3	22.4	101.6	100.9	7.1	7.1		4.6	4.6		19.6	16.4	
						28.1		8.0		22.5		100.2		7.0			4.6			13.2		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR3 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	12:43	Surface	-	-	-	-	-	-	-	-	-	-	-	6.0	-	-	8.3	-	-	6.0
						-		-		-		-		-			-			-		
				Middle	0.9	29.1	29.1	8.0	8.0	23.6	23.6	78.8	78.4	6.0	6.0		8.3	8.3		6.0	6.0	
						29.1		8.0		23.6		78.0		5.9			8.3			6.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
23-Sep-13	Cloudy	Rough	14:12	Surface	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	11.5	-	-	8.4
						-		-		-		-		-			-			-		
				Middle	1.1	27.4	27.4	8.1	8.1	22.1	22.1	92.7	92.9	6.5	6.5		11.0	11.5		8.3	8.4	
						27.4		8.1		22.1		93.0		6.5			11.9			8.5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
25-Sep-13	Sunny	Calm	16:45	Surface	-	-	-	-	-	-	-	-	-	-	-	5.3	-	-	12.2	-	-	10.1
						-		-		-		-		-			-			-		
				Middle	1.2	28.8	28.8	8.1	8.1	21.9	21.9	79.3	79.2	5.3	5.3		12.0	12.2		10.6	10.1	
						28.8		8.1		21.9		79.1		5.3			12.4			9.6		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
28-Sep-13	Sunny	Calm	05:46	Surface	-	-	-	-	-	-	-	-	-	-	-	5.8	-	-	4.6	-	-	4.1
						-		-		-		-		-			-			-		
				Middle	0.8	27.5	27.5	8.1	8.1	22.7	22.7	84.0	83.8	5.8	5.8		4.5	4.6		4.6	4.1	
						27.5		8.1		22.7		83.5		5.7			4.6			3.5		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
30-Sep-13	Cloudy	Calm	08:57	Surface	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	5.5	-	-	3.2
						-		-		-		-		-			-			-		
				Middle	1.3	27.7	27.8	8.1	8.1	26.0	26.2	83.7	83.3	5.6	5.6		5.5	5.5		3.3	3.2	
						27.8		8.1		26.3		82.8		5.5			5.4			3.1		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR3 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	18:38	Surface	-	-	-	-	-	-	-	-	-	-	-	6.1	-	-	8.6	-	-	4.4
						-		-		-		-		-			-			-		
				Middle	0.6	29.3	29.3	8.2	8.2	17.0	17.0	82.9	82.6	6.1	6.1		8.6	8.6		4.8	4.4	
						29.3		8.2		17.0		82.3		6.1			8.6			4.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
4-Sep-13	Cloudy	Moderate	19:30	Surface	-	-	-	-	-	-	-	-	-	-	-	5.7	-	-	9.1	-	-	3.3
						-		-		-		-		-			-			-		
				Middle	1.1	27.1	27.1	7.9	7.9	17.0	17.0	76.4	77.3	5.6	5.7		9.3	9.1		3.3	3.3	
						27.1		7.9		17.0		78.1		5.8			8.9			3.3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
6-Sep-13	Fine	Calm	20:35	Surface	-	-	-	-	-	-	-	-	-	-	-	5.5	-	-	7.1	-	-	12.5
						-		-		-		-		-			-			-		
				Middle	0.7	27.1	27.1	7.8	7.8	21.0	21.0	76.8	76.4	5.5	5.5		6.9	7.1		12.2	12.5	
						27.1		7.8		21.0		75.9		5.5			7.2			12.7		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
9-Sep-13	Sunny	Moderate	07:58	Surface	-	-	-	-	-	-	-	-	-	-	-	6.0	-	-	4.5	-	-	4.4
						-		-		-		-		-			-			-		
				Middle	0.7	27.5	27.5	7.7	7.7	19.6	19.6	84.9	84.8	6.0	6.0		4.7	4.5		3.4	4.4	
						27.5		7.7		19.6		84.7		6.0			4.3			5.4		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
11-Sep-13	Sunny	Moderate	10:06	Surface	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	11.0	-	-	2.0
						-		-		-		-		-			-			-		
				Middle	0.9	27.5	27.5	7.7	7.8	18.1	18.1	74.1	74.1	5.6	5.6		9.9	11.0		1.9	2.0	
						27.5		7.8		18.1		74.1		5.6			12.0			2.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
14-Sep-13	Sunny	Moderate	16:23	Surface	-	-	-	-	-	-	-	-	-	-	-	8.0	-	-	5.5	-	-	4.4
						-		-		-		-		-			-			-		
				Middle	0.7	29.1	29.1	8.1	8.1	20.7	20.7	116.7	116.4	8.0	8.0		5.5	5.5		5.5	4.4	
						29.1		8.1		20.6		116.1		8.0			5.4			3.2		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
16-Sep-13	Sunny	Calm	17:36	Surface	-	-	-	-	-	-	-	-	-	-	-	7.4	-	-	8.4	-	-	5.4
						-		-		-		-		-			-			-		
				Middle	0.7	29.3	29.3	8.2	8.2	20.9	20.9	109.5	107.7	7.5	7.4		7.6	8.4		4.5	5.4	
						29.3		8.2		20.9		105.8		7.2			9.1			6.3		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		
18-Sep-13	Fine	Moderate	18:58	Surface	-	-	-	-	-	-	-	-	-	-	-	7.1	-	-	13.9	-	-	7.4
						-		-		-		-		-			-			-		
				Middle	0.5	28.1	28.1	8.0	8.0	22.4	22.5	102.1	102.0	7.1	7.1		14.1	13.9		6.8	7.4	
						28.1		8.0		22.5		101.9		7.1			13.7			8.0		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	
						-		-		-		-		-			-			-		

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR3 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	20:24	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.7	- -	-	10.5	- -	-	20.4
				Middle	0.7	29.0 29.0	29.0	8.1 8.1	8.1	23.7 23.8	23.8	82.5 82.5	82.5	5.7 5.7	5.7		10.6 10.3	10.5		25.0 15.7	20.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
25-Sep-13	Sunny	Calm	10:07	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	6.5	- -	-	11.3	- -	-	3.4
				Middle	0.7	28.1 28.1	28.1	8.0 8.1	8.1	22.7 22.7	22.7	96.4 95.9	96.2	6.5 6.5	6.5		11.1 11.4	11.3		3.1 3.7	3.4	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
28-Sep-13	Fine	Calm	20:04	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.3	- -	-	4.4	- -	-	5.1
				Middle	1.3	27.3 27.3	27.3	8.2 8.2	8.2	23.5 23.5	23.5	77.7 80.3	79.0	5.2 5.4	5.3		4.3 4.4	4.4		5.7 4.5	5.1	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	
30-Sep-13	Cloudy	Calm	16:40	Surface	-	- -	-	- -	-	- -	-	- -	-	- -	-	5.3	- -	-	9.4	- -	-	5.8
				Middle	1.2	27.3 27.3	27.3	8.2 8.2	8.2	26.2 26.2	26.2	79.3 78.7	79.0	5.3 5.3	5.3		9.3 9.4	9.4		6.1 5.5	5.8	
				Bottom	-	- -	-	- -	-	- -	-	- -	-	- -	-	-	- -	-		- -	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR6 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	10:09	Surface	1	28.0 28.0	28.0	7.8 7.8	7.8	9.7 9.7	9.7	91.8 91.5	91.7	6.8 6.8	6.8	6.8	4.2 4.1	4.2	4.0	2.1 2.0	2.1	2.2
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.1	26.1 26.3	26.2	7.9 7.8	7.9	25.3 24.3	24.8	71.5 71.7	71.6	5.3 5.3	5.3	5.3	3.4 4.0	3.7		1.8 2.6	2.2	
4-Sep-13	Cloudy	Moderate	11:24	Surface	1	27.0 27.0	27.0	7.9 7.9	7.9	19.5 19.5	19.5	87.7 89.3	88.5	6.7 6.7	6.7	6.7	3.9 3.4	3.7	3.6	4.8 3.6	4.2	4.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.3	27.1 27.1	27.1	7.9 7.9	7.9	22.5 22.5	22.5	70.1 70.2	70.2	5.2 5.2	5.2	5.2	3.4 3.5	3.5		3.5 3.9	3.7	
6-Sep-13	Sunny	Calm	12:27	Surface	1	26.8 26.7	26.8	7.8 7.8	7.8	19.2 20.5	19.9	77.3 77.2	77.3	5.5 5.4	5.5	5.5	5.3 5.3	5.3	10.0	3.1 3.1	3.1	3.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.2	25.9 25.5	25.7	7.9 7.9	7.9	22.8 22.8	22.8	73.7 73.7	73.7	5.2 5.2	5.2	5.2	14.3 15.1	14.7		3.5 2.2	2.9	
9-Sep-13	Sunny	Moderate	14:09	Surface	1	27.7 27.6	27.7	7.8 7.9	7.9	20.5 20.6	20.6	79.6 79.1	79.4	5.7 5.7	5.7	5.7	1.3 1.2	1.3	4.0	4.6 2.9	3.8	4.1
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.1	26.7 26.7	26.7	7.9 8.0	8.0	25.1 25.1	25.1	75.8 75.9	75.9	5.4 5.4	5.4	5.4	6.5 6.7	6.6		4.4 4.1	4.3	
11-Sep-13	Sunny	Moderate	17:52	Surface	1	28.4 28.3	28.4	8.0 8.0	8.0	19.6 19.6	19.6	71.0 69.9	70.5	5.3 5.2	5.3	5.3	4.3 4.1	4.2	4.6	3.0 2.7	2.9	2.7
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4	27.4 27.5	27.5	8.0 8.0	8.0	25.1 25.0	25.1	72.6 72.0	72.3	5.4 5.3	5.4	5.4	5.1 4.9	5.0		2.8 1.9	2.4	
14-Sep-13	Sunny	Moderate	07:04	Surface	1	27.3 27.3	27.3	7.9 7.9	7.9	16.2 16.1	16.2	88.4 86.9	87.7	6.4 6.3	6.4	6.4	1.2 1.2	1.2	2.6	1.2 1.1	1.2	1.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.5	27.0 27.0	27.0	8.0 8.0	8.0	24.8 24.8	24.8	82.3 81.9	82.1	5.7 5.7	5.7	5.7	4.1 3.8	4.0		1.4 2.0	1.7	
16-Sep-13	Sunny	Calm	09:04	Surface	1	27.6 27.7	27.7	8.0 8.0	8.0	22.1 22.1	22.1	90.3 90.1	90.2	6.3 6.3	6.3	6.3	2.3 2.2	2.3	6.8	2.0 2.8	2.4	2.5
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.1	27.4 27.4	27.4	8.0 8.0	8.0	24.8 24.3	24.6	80.9 82.2	81.6	5.6 5.7	5.7	5.7	10.7 11.8	11.3		2.3 2.7	2.5	
18-Sep-13	Fine	Moderate	11:55	Surface	1	28.3 28.3	28.3	8.1 8.1	8.1	24.3 24.3	24.3	92.8 93.0	92.9	6.4 6.4	6.4	6.4	9.6 9.1	9.4	13.4	7.8 10.0	8.9	9.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.8	28.0 28.0	28.0	8.2 8.2	8.2	25.7 25.8	25.8	90.2 90.0	90.1	6.2 6.2	6.2	6.2	17.9 16.6	17.3		11.2 9.2	10.2	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR6 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	14:54	Surface	1	28.1 28.1	28.1	8.0 8.0	8.0	23.0 23.2	23.1	81.2 81.3	81.3	5.6 5.6	5.6	5.6	12.5 12.4	12.5	16.1	6.5 6.5	6.5	7.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.7	27.6 27.8	27.7	8.1 8.0	8.1	25.5 24.4	25.0	81.6 81.2	81.4	5.6 5.6	5.6	5.6	21.0 18.1	19.6		7.3 8.8	8.1	
23-Sep-13	Cloudy	Rough	14:03	Surface	1	28.1 28.1	28.1	8.1 8.1	8.1	22.0 22.0	22.0	95.0 95.0	95.0	6.8 6.8	6.8	6.8	11.3 11.5	11.4	12.2	7.7 7.7	7.7	9.7
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.4	27.9 28.0	28.0	8.1 8.1	8.1	22.7 22.7	22.7	87.5 87.7	87.6	6.2 6.3	6.3	6.3	13.9 11.8	12.9		12.3 11.0	11.7	
25-Sep-13	Sunny	Calm	15:48	Surface	1	28.6 28.6	28.6	8.0 8.1	8.1	16.8 16.9	16.9	81.1 80.8	81.0	5.5 5.5	5.5	5.5	4.0 3.9	4.0	6.3	3.9 4.6	4.3	4.4
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.2	28.0 28.0	28.0	8.1 8.1	8.1	21.1 21.3	21.2	79.3 78.9	79.1	5.4 5.3	5.4	5.4	8.5 8.6	8.6		3.7 5.0	4.4	
28-Sep-13	Sunny	Calm	06:29	Surface	1	27.4 27.4	27.4	8.1 8.1	8.1	21.8 21.9	21.9	91.2 91.1	91.2	6.4 6.4	6.4	6.4	2.2 2.3	2.3	3.9	2.9 2.6	2.8	2.6
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.2	27.4 27.4	27.4	8.1 8.1	8.1	27.5 27.5	27.5	86.3 86.2	86.3	5.9 5.9	5.9	5.9	5.3 5.4	5.4		2.1 2.5	2.3	
30-Sep-13	Cloudy	Calm	10:30	Surface	1	26.9 26.9	26.9	8.2 8.2	8.2	27.6 27.4	27.5	93.4 92.8	93.1	6.3 6.2	6.3	6.3	3.9 3.5	3.7	6.6	3.4 3.8	3.6	3.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.7	27.3 27.3	27.3	8.2 8.2	8.2	29.4 29.4	29.4	91.7 91.0	91.4	6.1 6.0	6.1	6.1	9.7 9.2	9.5		3.5 4.7	4.1	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR6 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	17:18	Surface	1	28.5 28.5	28.5	7.9 7.9	7.9	12.9 13.0	13.0	97.5 97.3	97.4	7.1 7.0	7.1	7.1	5.5 5.5	5.5	7.4	2.8 2.5	2.7	2.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.9	26.5 26.6	26.6	7.8 7.8	7.8	22.2 22.3	22.3	72.2 73.6	72.9	5.4 5.5	5.5	5.5	8.9 9.4	9.2		3.0 3.2	3.1	
4-Sep-13	Cloudy	Moderate	17:56	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	19.6 19.5	19.6	84.4 84.3	84.4	6.3 6.3	6.3	6.3	6.6 6.5	6.6	8.6	3.0 3.6	3.3	2.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.7	27.1 27.1	27.1	7.8 7.8	7.8	20.3 20.3	20.3	70.6 70.4	70.5	5.3 5.3	5.3	5.3	10.4 10.5	10.5		2.6 2.4	2.5	
6-Sep-13	Fine	Calm	18:44	Surface	1	26.7 26.7	26.7	7.7 7.7	7.7	17.5 17.5	17.5	74.7 75.8	75.3	5.3 5.3	5.3	5.3	8.7 8.2	8.5	11.1	10.2 9.7	10.0	10.3
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	2.8	26.7 26.6	26.7	7.8 7.8	7.8	19.8 19.9	19.9	72.5 71.5	72.0	5.1 5.0	5.1	5.1	13.6 13.6	13.6		11.0 10.0	10.5	
9-Sep-13	Sunny	Moderate	07:50	Surface	1	27.1 27.1	27.1	7.6 7.6	7.6	16.7 16.7	16.7	78.6 78.0	78.3	5.6 5.6	5.6	5.6	3.4 3.3	3.4	6.2	3.4 2.4	2.9	2.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3	27.1 27.1	27.1	7.6 7.6	7.6	17.6 17.4	17.5	76.5 76.5	76.5	5.5 5.5	5.5	5.5	9.5 8.4	9.0		2.9 2.8	2.9	
11-Sep-13	Sunny	Moderate	12:14	Surface	1	28.1 27.7	27.9	7.8 7.9	7.9	16.8 17.5	17.2	67.4 66.5	67.0	5.2 5.1	5.2	5.2	3.4 3.5	3.5	5.4	1.3 2.1	1.7	2.2
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.2	27.4 27.6	27.5	7.9 7.9	7.9	23.6 23.5	23.6	68.5 68.5	68.5	5.1 5.1	5.1	5.1	7.2 7.4	7.3		2.6 2.5	2.6	
14-Sep-13	Sunny	Moderate	14:35	Surface	1	28.5 28.5	28.5	7.9 7.9	7.9	14.8 14.8	14.8	87.6 87.0	87.3	6.3 6.2	6.3	6.3	3.4 3.8	3.6	5.2	1.7 1.8	1.8	1.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.4	27.4 27.5	27.5	7.9 7.9	7.9	21.8 21.6	21.7	88.4 88.0	88.2	6.2 6.2	6.2	6.2	6.9 6.7	6.8		1.1 2.3	1.7	
16-Sep-13	Sunny	Calm	15:53	Surface	1	28.2 28.2	28.2	7.9 7.9	7.9	19.5 19.5	19.5	91.7 91.2	91.5	6.4 6.4	6.4	6.4	4.6 4.6	4.6	6.7	6.3 5.8	6.1	5.4
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.1	27.8 27.8	27.8	7.9 7.9	7.9	21.5 21.4	21.5	79.7 79.8	79.8	5.6 5.6	5.6	5.6	8.8 8.5	8.7		5.2 4.2	4.7	
18-Sep-13	Fine	Moderate	17:25	Surface	1	28.2 28.2	28.2	8.1 8.1	8.1	22.1 22.1	22.1	83.7 82.1	82.9	5.8 5.7	5.8	5.8	14.2 14.5	14.4	14.5	12.8 8.8	10.8	11.0
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.3	28.2 28.2	28.2	8.1 8.1	8.1	23.3 23.2	23.3	82.1 81.3	81.7	5.6 5.6	5.6	5.6	14.9 14.3	14.6		11.2 11.2	11.2	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR6 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	18:51	Surface	1	28.3 28.3	28.3	7.9 7.9	7.9	22.0 22.0	22.0	84.7 84.9	84.8	5.8 5.9	5.9	5.9	8.0 7.8	7.9	8.8	7.7 9.0	8.4	11.2
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.1	28.2 28.2	28.2	8.0 8.0	8.0	23.0 22.9	23.0	85.6 85.4	85.5	5.9 5.9	5.9	5.9	9.3 9.8	9.6		15.0 13.0	14.0	
25-Sep-13	Sunny	Calm	11:47	Surface	1	28.4 28.5	28.5	7.9 7.9	7.9	15.8 15.7	15.8	84.0 83.1	83.6	5.8 5.7	5.8	5.8	7.5 7.6	7.6	11.6	4.2 4.4	4.3	6.1
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.2	28.0 28.0	28.0	8.1 8.1	8.1	21.2 21.3	21.3	83.8 82.2	83.0	5.7 5.6	5.7	5.7	15.2 15.7	15.5		6.4 9.4	7.9	
28-Sep-13	Fine	Calm	18:57	Surface	1	27.5 27.5	27.5	8.1 8.1	8.1	21.2 21.2	21.2	104.8 105.3	105.1	7.4 7.4	7.4	7.4	2.2 2.4	2.3	6.3	2.9 3.3	3.1	2.9
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	4.6	27.4 27.4	27.4	8.2 8.2	8.2	27.3 27.3	27.3	88.9 89.0	89.0	6.0 6.1	6.1	6.1	10.4 10.0	10.2		2.7 2.7	2.7	
30-Sep-13	Cloudy	Calm	16:19	Surface	1	27.0 27.0	27.0	8.1 8.1	8.1	26.7 26.8	26.8	80.6 79.2	79.9	5.4 5.3	5.4	5.4	3.0 3.2	3.1	7.1	3.8 4.8	4.3	3.8
				Middle	-	- -	-	- -	-	- -	-	- -	-	- -	-		- -	-		- -	-	
				Bottom	3.7	27.2 27.2	27.2	8.2 8.2	8.2	28.7 28.7	28.7	80.3 80.2	80.3	5.3 5.3	5.3	5.3	11.1 11.1	11.1		3.5 2.8	3.2	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SRA - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	09:53	Surface	1	28.7 28.7	28.7	7.9 7.9	7.9	13.6 13.6	13.6	79.2 79.1	79.2	5.9 5.9	5.9	5.6	4.2 4.1	4.2	7.0	3.0 3.3	3.2	3.0
				Middle	3	27.6 27.6	27.6	7.9 7.9	7.9	23.2 21.5	22.4	70.4 70.8	70.6	5.3 5.3	5.3		6.1 5.8	6.0		2.8 3.3	3.1	
				Bottom	5	27.1 27.1	27.1	7.9 7.9	7.9	26.8 26.8	26.8	65.8 66.0	65.9	5.0 5.0	5.0	5.0	10.8 10.7	10.8		3.1 2.5	2.8	
4-Sep-13	Cloudy	Moderate	11:59	Surface	1	27.0 27.1	27.1	7.9 7.9	7.9	13.9 13.1	13.5	85.3 73.9	79.6	6.2 5.3	5.8	5.6	3.1 3.1	3.1	5.7	1.6 2.8	2.2	2.6
				Middle	3	27.1 27.1	27.1	7.9 7.9	7.9	22.1 21.9	22.0	73.9 73.9	73.9	5.3 5.4	5.4		5.1 5.8	5.5		2.9 3.1	3.0	
				Bottom	5	26.6 26.7	26.7	7.9 7.9	7.9	25.7 25.4	25.6	70.0 68.0	69.0	5.1 5.0	5.1	5.1	8.6 8.5	8.6		2.3 2.9	2.6	
6-Sep-13	Sunny	Calm	12:43	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	21.2 21.2	21.2	79.3 78.4	78.9	5.6 5.5	5.6	5.4	7.0 7.9	7.5	13.9	3.3 4.3	3.8	4.0
				Middle	4	26.6 26.6	26.6	7.8 7.8	7.8	22.3 22.2	22.3	72.2 73.2	72.7	5.1 5.2	5.2		11.9 10.2	11.1		3.3 3.9	3.6	
				Bottom	7	26.5 26.5	26.5	7.9 7.9	7.9	22.6 22.6	22.6	69.2 68.6	68.9	4.9 4.9	4.9	4.9	22.6 23.7	23.2		3.4 5.7	4.6	
9-Sep-13	Sunny	Moderate	15:50	Surface	1	28.3 28.3	28.3	7.9 7.9	7.9	20.7 20.8	20.8	81.0 74.7	77.9	5.6 5.2	5.4	5.4	3.7 3.8	3.8	5.3	2.3 2.4	2.4	2.8
				Middle	4	27.4 27.5	27.5	7.9 7.9	7.9	22.6 22.5	22.6	78.6 75.6	77.1	5.5 5.3	5.4		5.6 5.9	5.8		2.8 2.5	2.7	
				Bottom	7	27.2 27.1	27.2	7.9 7.9	7.9	23.3 23.3	23.3	74.5 70.3	72.4	5.2 4.9	5.1	5.1	6.2 6.3	6.3		3.4 2.9	3.2	
11-Sep-13	Sunny	Moderate	17:16	Surface	1	27.9 27.9	27.9	7.8 7.8	7.8	17.7 17.7	17.7	82.1 82.1	82.1	6.3 6.3	6.3	6.4	5.6 5.5	5.6	6.5	2.5 2.2	2.4	2.6
				Middle	3	27.8 27.8	27.8	7.8 7.8	7.8	17.9 17.8	17.9	84.5 85.2	84.9	6.4 6.5	6.5		6.5 6.5	6.5		1.9 3.3	2.6	
				Bottom	5	27.8 27.8	27.8	7.8 7.8	7.8	18.2 18.2	18.2	82.1 82.1	82.1	6.3 6.3	6.3	6.3	7.4 7.1	7.3		2.7 2.9	2.8	
14-Sep-13	Sunny	Moderate	06:22	Surface	1	27.7 27.7	27.7	7.9 7.9	7.9	18.2 18.2	18.2	85.9 83.1	84.5	6.0 5.8	5.9	5.8	3.0 3.2	3.1	6.0	3.8 2.5	3.2	2.7
				Middle	4	27.7 27.7	27.7	7.9 8.0	8.0	21.0 21.3	21.2	83.6 78.2	80.9	5.8 5.4	5.6		5.2 5.5	5.4		3.2 2.8	3.0	
				Bottom	7	27.6 27.6	27.6	8.0 8.0	8.0	22.4 22.5	22.5	78.8 76.7	77.8	5.4 5.2	5.3	5.3	9.4 9.3	9.4		2.5 1.2	1.9	
16-Sep-13	Sunny	Calm	08:41	Surface	1	28.3 28.3	28.3	8.0 8.0	8.0	21.7 21.6	21.7	98.5 98.3	98.4	6.7 6.7	6.7	6.2	4.0 4.3	4.2	6.1	6.0 5.4	5.7	6.2
				Middle	3	28.1 28.1	28.1	8.0 8.0	8.0	22.5 22.8	22.7	83.5 83.5	83.5	5.7 5.7	5.7		5.7 5.9	5.8		6.4 6.4	6.4	
				Bottom	5	28.0 28.0	28.0	8.0 8.0	8.0	23.2 23.4	23.3	78.4 77.8	78.1	5.3 5.3	5.3	5.3	8.2 8.3	8.3		6.4 6.8	6.6	
18-Sep-13	Fine	Moderate	11:14	Surface	1	27.9 27.9	27.9	8.1 8.1	8.1	24.3 24.4	24.4	97.4 92.4	94.9	6.7 6.4	6.6	6.6	9.2 9.7	9.5	13.0	10.4 10.0	10.2	11.8
				Middle	4	27.9 27.9	27.9	8.1 8.1	8.1	24.5 24.5	24.5	94.5 93.6	94.1	6.5 6.5	6.5		13.1 12.7	12.9		14.4 6.4	10.4	
				Bottom	7	27.9 27.9	27.9	8.1 8.1	8.1	25.0 25.2	25.1	93.4 91.9	92.7	6.4 6.3	6.4	6.4	16.4 16.6	16.5		11.2 18.4	14.8	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SRA - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	12:50	Surface	1	28.8 28.8	28.8	8.1 8.1	8.1	23.6 23.6	23.6	85.7 86.3	86.0	6.5 6.6	6.6	6.5	10.7 11.3	11.0	14.1	12.0 13.3	12.7	12.7
				Middle	3.5	28.6 28.6	28.6	8.1 8.1	8.1	23.7 23.7	23.7	84.1 83.7	83.9	6.4 6.4	6.4		15.2 14.6	14.9		13.3 14.7	14.0	
				Bottom	6	28.5 28.6	28.6	8.1 8.1	8.1	23.8 23.8	23.8	81.5 81.2	81.4	6.2 6.2	6.2	6.2	16.4 16.5	16.5		10.3 12.7	11.5	
23-Sep-13	Cloudy	Rough	14:17	Surface	1	27.6 27.7	27.7	8.1 8.1	8.1	22.3 22.3	22.3	96.3 95.8	96.1	6.7 6.7	6.7	6.7	9.0 8.2	8.6	10.9	11.2 7.7	9.5	7.8
				Middle	3.5	27.3 27.3	27.3	8.1 8.1	8.1	22.8 22.8	22.8	95.0 94.3	94.7	6.6 6.6	6.6		10.8 10.8	10.8		6.7 6.7	6.7	
				Bottom	6	27.2 27.2	27.2	8.1 8.1	8.1	22.9 22.9	22.9	93.6 93.5	93.6	6.5 6.5	6.5	6.5	13.0 13.6	13.3		8.5 6.0	7.3	
25-Sep-13	Sunny	Calm	16:37	Surface	1	28.4 28.4	28.4	8.1 8.1	8.1	21.6 21.5	21.6	77.8 78.0	77.9	5.2 5.3	5.3	5.3	9.3 9.3	9.3	11.2	13.4 14.0	13.7	13.5
				Middle	3.5	28.4 28.4	28.4	8.1 8.1	8.1	21.7 21.6	21.7	77.5 77.0	77.3	5.2 5.2	5.2		11.3 11.0	11.2		12.6 13.2	12.9	
				Bottom	6	28.4 28.3	28.4	8.1 8.1	8.1	21.7 21.7	21.7	76.8 77.0	76.9	5.2 5.2	5.2	5.2	13.2 12.9	13.1		13.6 14.2	13.9	
28-Sep-13	Sunny	Calm	05:52	Surface	1	27.1 27.2	27.2	8.1 8.1	8.1	23.9 24.1	24.0	82.4 82.6	82.5	5.6 5.7	5.7	5.5	4.3 4.5	4.4	6.1	3.7 3.9	3.8	3.9
				Middle	3.5	27.2 27.2	27.2	8.2 8.1	8.2	27.3 27.4	27.4	79.0 76.8	77.9	5.3 5.2	5.3		5.1 4.9	5.0		6.4 3.2	4.8	
				Bottom	6	27.2 27.2	27.2	8.2 8.2	8.2	28.3 28.3	28.3	76.2 76.7	76.5	5.1 5.2	5.2	5.2	8.8 8.7	8.8		3.0 3.0	3.0	
30-Sep-13	Cloudy	Calm	09:02	Surface	1	27.5 27.5	27.5	8.2 8.2	8.2	27.5 27.5	27.5	93.1 90.6	91.9	6.2 6.1	6.2	6.0	4.4 4.1	4.3	7.4	5.9 4.8	5.4	4.5
				Middle	4	27.7 27.7	27.7	8.2 8.2	8.2	28.7 28.7	28.7	87.5 86.2	86.9	5.8 5.7	5.8		7.1 6.4	6.8		3.4 3.9	3.7	
				Bottom	7	27.9 27.9	27.9	8.2 8.2	8.2	29.5 29.5	29.5	85.6 84.2	84.9	5.7 5.6	5.7	5.7	11.8 10.4	11.1		5.4 3.4	4.4	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SRA - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	18:32	Surface	1	28.7 28.7	28.7	7.9 7.9	7.9	13.6 13.6	13.6	79.3 79.1	79.2	5.9 5.9	5.9	5.6	4.2 4.1	4.2	7.0	5.8 4.2	5.0	4.5
				Middle	3.5	27.6 27.6	27.6	7.9 7.9	7.9	23.2 21.5	22.4	70.4 70.8	70.6	5.3 5.3	5.3		6.1 5.8	6.0		4.0 3.7	3.9	
				Bottom	6	27.1 27.1	27.1	7.9 7.9	7.9	26.8 26.8	26.8	65.8 66.0	65.9	5.0 5.0	5.0	5.0	10.8 10.7	10.8		4.7 4.5	4.6	
4-Sep-13	Cloudy	Moderate	19:20	Surface	1	27.1 27.1	27.1	7.9 7.9	7.9	14.3 14.2	14.3	71.1 71.1	71.1	5.3 5.3	5.3	5.3	4.7 4.8	4.8	6.9	5.3 2.7	4.0	3.2
				Middle	3.5	27.0 27.0	27.0	7.9 7.9	7.9	21.3 21.2	21.3	70.2 69.5	69.9	5.2 5.1	5.2		6.4 5.4	5.9		2.2 2.9	2.6	
				Bottom	6	27.0 27.0	27.0	7.9 7.9	7.9	25.5 25.5	25.5	69.7 69.7	69.7	5.1 5.1	5.1	5.1	10.0 10.0	10.0		2.6 3.6	3.1	
6-Sep-13	Fine	Calm	20:12	Surface	1	27.2 27.1	27.2	7.8 7.8	7.8	20.8 20.7	20.8	77.3 75.5	76.4	5.5 5.4	5.5	5.3	7.1 6.5	6.8	14.3	11.5 11.5	11.5	10.4
				Middle	3.5	27.1 27.1	27.1	7.8 7.8	7.8	21.0 20.8	20.9	72.6 71.9	72.3	5.1 5.1	5.1		15.2 15.3	15.3		11.5 9.8	10.7	
				Bottom	6	27.1 27.1	27.1	7.8 7.8	7.8	21.0 20.9	21.0	68.5 68.8	68.7	5.0 4.9	5.0	5.0	20.9 20.7	20.8		7.0 10.7	8.9	
9-Sep-13	Sunny	Moderate	08:05	Surface	1	27.4 27.4	27.4	7.7 7.7	7.7	19.7 19.7	19.7	86.2 81.4	83.8	6.1 5.8	6.0	5.9	7.6 7.4	7.5	7.8	2.6 2.7	2.7	3.3
				Middle	3.5	27.4 27.5	27.5	7.7 7.7	7.7	19.7 19.7	19.7	81.1 77.3	79.2	5.8 5.5	5.7		8.5 8.8	8.7		3.5 3.1	3.3	
				Bottom	6	27.4 27.4	27.4	7.7 7.7	7.7	19.8 20.0	19.9	78.1 75.3	76.7	5.5 5.3	5.4	5.4	6.9 7.2	7.1		2.9 4.7	3.8	
11-Sep-13	Sunny	Moderate	10:13	Surface	1	27.4 27.4	27.4	7.8 7.8	7.8	18.3 18.3	18.3	75.4 75.6	75.5	5.7 5.8	5.8	5.8	8.3 7.7	8.0	8.4	4.1 4.0	4.1	2.8
				Middle	3.5	27.4 27.4	27.4	7.8 7.8	7.8	18.5 18.5	18.5	75.2 75.3	75.3	5.7 5.7	5.7		8.0 8.7	8.4		2.2 2.0	2.1	
				Bottom	6	27.3 27.2	27.3	7.8 7.8	7.8	18.9 19.0	19.0	73.1 72.5	72.8	5.6 5.5	5.6	5.6	8.7 8.6	8.7		2.7 1.9	2.3	
14-Sep-13	Sunny	Moderate	16:08	Surface	1	29.0 28.9	29.0	8.1 8.1	8.1	21.0 21.0	21.0	95.7 93.2	94.5	6.6 6.4	6.5	6.4	6.5 7.0	6.8	8.0	6.5 6.5	6.5	6.0
				Middle	3.5	28.8 28.7	28.8	8.1 8.0	8.1	21.1 21.3	21.2	93.8 89.7	91.8	6.4 6.2	6.3		6.9 7.3	7.1		6.3 6.7	6.5	
				Bottom	6	28.2 28.4	28.3	8.0 8.0	8.0	22.2 21.8	22.0	78.5 79.4	79.0	5.4 5.4	5.4	5.4	10.1 10.3	10.2		5.5 4.7	5.1	
16-Sep-13	Sunny	Calm	17:28	Surface	1	29.3 29.3	29.3	8.2 8.2	8.2	21.4 21.5	21.5	109.8 109.4	109.6	7.5 7.5	7.5	7.4	10.1 10.1	10.1	11.2	5.2 5.0	5.1	5.6
				Middle	3.5	29.2 29.2	29.2	8.2 8.2	8.2	21.6 21.5	21.6	108.4 105.5	107.0	7.4 7.2	7.3		10.3 10.6	10.5		6.0 5.7	5.9	
				Bottom	6	29.0 29.0	29.0	8.1 8.1	8.1	22.0 22.0	22.0	101.2 102.4	101.8	6.9 7.0	7.0	7.0	13.1 12.8	13.0		5.2 6.3	5.8	
18-Sep-13	Fine	Moderate	18:45	Surface	1	28.0 28.1	28.1	8.0 8.0	8.0	22.6 22.7	22.7	99.5 97.5	98.5	6.9 6.8	6.9	6.9	14.5 14.4	14.5	17.9	14.4 14.4	14.4	14.0
				Middle	3	28.1 28.1	28.1	8.0 8.0	8.0	22.6 22.7	22.7	97.4 97.5	97.5	6.8 6.8	6.8		18.1 18.4	18.3		14.4 13.6	14.0	
				Bottom	5	28.1 28.1	28.1	8.0 8.0	8.0	22.6 22.7	22.7	97.4 97.3	97.4	6.8 6.8	6.8	6.8	20.8 20.9	20.9		14.4 12.8	13.6	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SRA - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	20:17	Surface	1	29.0 29.0	29.0	8.1 8.1	8.1	23.7 23.7	23.7	79.2 79.1	79.2	5.4 5.4	5.4	5.4	15.1 15.1	15.1	14.9	14.7 12.7	13.7	14.6
				Middle	3	29.0 29.0	29.0	8.1 8.1	8.1	23.7 23.7	23.7	79.2 79.0	79.1	5.4 5.4	5.4		15.3 14.9	15.1		14.3 15.0	14.7	
				Bottom	5	29.0 29.0	29.0	8.1 8.1	8.1	23.7 23.7	23.7	79.0 79.2	79.1	5.4 5.4	5.4	5.4	14.5 14.2	14.4		12.0 18.7	15.4	
25-Sep-13	Sunny	Calm	10:17	Surface	1	28.0 28.0	28.0	8.1 8.1	8.1	22.5 22.5	22.5	88.9 89.3	89.1	6.0 6.0	6.0	6.0	13.3 13.6	13.5	14.1	4.0 3.2	3.6	3.6
				Middle	3.5	28.0 28.0	28.0	8.1 8.1	8.1	22.5 22.5	22.5	88.3 88.6	88.5	6.0 6.0	6.0		13.8 13.5	13.7		3.3 4.9	4.1	
				Bottom	6	28.0 28.0	28.0	8.1 8.1	8.1	22.5 22.4	22.5	88.2 88.5	88.4	6.0 6.0	6.0	6.0	15.5 14.9	15.2		3.3 3.0	3.2	
28-Sep-13	Fine	Calm	19:57	Surface	1	27.3 27.3	27.3	8.2 8.2	8.2	24.1 24.2	24.2	78.9 80.6	79.8	5.3 5.4	5.4	5.4	5.2 5.3	5.3	5.8	5.7 4.2	5.0	4.8
				Middle	3.5	27.4 27.3	27.4	8.2 8.2	8.2	24.4 24.4	24.4	78.2 78.6	78.4	5.2 5.3	5.3		5.6 5.4	5.5		4.2 3.3	3.8	
				Bottom	6	27.4 27.4	27.4	8.2 8.2	8.2	24.8 24.8	24.8	74.9 76.4	75.7	5.0 5.1	5.1	5.1	6.6 6.7	6.7		5.8 5.6	5.7	
30-Sep-13	Cloudy	Calm	16:34	Surface	1	27.4 27.4	27.4	8.2 8.2	8.2	26.4 26.5	26.5	86.8 83.1	85.0	5.8 5.6	5.7	5.6	8.1 8.1	8.1	9.1	5.2 7.2	6.2	6.4
				Middle	3.5	27.6 27.6	27.6	8.2 8.2	8.2	27.9 28.4	28.2	81.2 80.7	81.0	5.4 5.3	5.4		8.8 9.3	9.1		6.2 6.7	6.5	
				Bottom	6	27.8 27.8	27.8	8.2 8.2	8.2	29.7 29.5	29.6	78.6 78.4	78.5	5.2 5.2	5.2	5.2	10.2 9.7	10.0		6.3 6.7	6.5	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	11:08	Surface	1	28.3 28.4	28.4	7.8 7.7	7.8	8.0 7.7	7.9	86.4 86.4	86.4	6.4 6.4	6.4	6.3	4.3 4.5	4.4	9.5	3.5 5.0	4.3	2.5
				Middle	5	27.1 27.1	27.1	7.8 7.8	7.8	18.1 18.2	18.2	80.6 81.1	80.9	6.1 6.1	6.1		3.5 3.7	3.6		1.5 1.2	1.4	
				Bottom	9	25.8 25.8	25.8	7.9 7.9	7.9	27.0 27.0	27.0	67.9 68.5	68.2	5.0 5.0	5.0	5.0	19.8 21.2	20.5		2.2 1.3	1.8	
4-Sep-13	Cloudy	Moderate	12:49	Surface	1	27.1 27.0	27.1	7.9 7.9	7.9	19.4 19.4	19.4	72.0 73.5	72.8	5.5 5.6	5.6	5.5	3.8 3.6	3.7	3.9	2.7 5.0	3.9	3.6
				Middle	4.5	27.1 27.1	27.1	7.9 7.9	7.9	21.9 22.1	22.0	70.9 72.3	71.6	5.3 5.4	5.4		3.3 3.4	3.4		4.6 3.1	3.9	
				Bottom	8	26.7 26.7	26.7	7.9 7.9	7.9	25.9 25.9	25.9	73.9 73.4	73.7	5.5 5.4	5.5	5.5	4.4 4.5	4.5		3.2 2.8	3.0	
6-Sep-13	Sunny	Calm	13:29	Surface	1	27.1 27.6	27.4	7.8 7.8	7.8	18.7 18.7	18.7	82.6 79.0	80.8	5.9 5.6	5.8	5.7	4.1 4.1	4.1	7.2	3.5 5.0	4.3	3.8
				Middle	5	26.2 26.1	26.2	7.9 7.9	7.9	20.8 21.3	21.1	78.0 76.2	77.1	5.5 5.4	5.5		6.3 6.2	6.3		4.0 2.9	3.5	
				Bottom	9	25.9 25.9	25.9	7.9 7.9	7.9	23.0 22.5	22.8	73.3 71.8	72.6	5.2 5.1	5.2	5.2	11.6 10.5	11.1		3.3 3.6	3.5	
9-Sep-13	Sunny	Moderate	15:01	Surface	1	27.6 27.6	27.6	7.9 7.9	7.9	19.6 19.5	19.6	77.1 76.6	76.9	5.6 5.5	5.6	5.4	2.1 2.1	2.1	4.7	3.8 5.0	4.4	3.9
				Middle	5	26.8 26.9	26.9	7.9 7.9	7.9	22.3 22.0	22.2	72.5 72.4	72.5	5.2 5.2	5.2		5.3 5.3	5.3		3.4 3.1	3.3	
				Bottom	9	26.6 26.6	26.6	8.0 8.0	8.0	24.1 24.1	24.1	72.2 72.1	72.2	5.2 5.2	5.2	5.2	6.5 6.8	6.7		3.8 4.1	4.0	
11-Sep-13	Sunny	Moderate	16:26	Surface	1	28.2 28.6	28.4	8.0 7.9	8.0	17.8 17.7	17.8	69.9 73.8	71.9	5.3 5.5	5.4	5.5	3.5 3.6	3.6	5.9	2.6 5.0	3.8	2.8
				Middle	5	27.4 27.4	27.4	8.0 8.0	8.0	24.4 24.8	24.6	74.7 76.1	75.4	5.5 5.6	5.6		5.9 5.6	5.8		2.9 2.3	2.6	
				Bottom	9	27.3 27.3	27.3	8.0 8.0	8.0	25.5 25.4	25.5	70.4 70.0	70.2	5.2 5.2	5.2	5.2	8.4 8.2	8.3		2.2 1.9	2.1	
14-Sep-13	Sunny	Moderate	08:22	Surface	1	27.4 27.3	27.4	7.8 7.8	7.8	15.6 15.4	15.5	88.6 85.4	87.0	6.4 6.2	6.3	6.3	2.1 2.0	2.1	2.8	0.7 5.0	2.9	1.8
				Middle	4.5	27.3 27.3	27.3	7.8 7.9	7.9	18.4 19.8	19.1	87.8 86.3	87.1	6.3 6.1	6.2		2.2 1.8	2.0		1.2 1.3	1.3	
				Bottom	8	26.9 27.0	27.0	8.0 8.0	8.0	25.1 25.1	25.1	81.1 83.1	82.1	5.6 5.8	5.7	5.7	4.4 4.1	4.3		0.8 1.4	1.1	
16-Sep-13	Sunny	Calm	09:59	Surface	1	27.7 27.7	27.7	8.0 8.0	8.0	22.1 22.3	22.2	86.9 87.0	87.0	6.0 6.1	6.1	6.1	2.3 2.7	2.5	5.0	3.4 5.0	4.2	3.2
				Middle	5	27.6 27.6	27.6	8.0 8.0	8.0	22.4 22.5	22.5	86.8 85.8	86.3	6.0 6.0	6.0		2.7 2.8	2.8		1.7 4.2	3.0	
				Bottom	9	27.3 27.3	27.3	8.0 8.0	8.0	25.5 25.5	25.5	77.5 77.2	77.4	5.3 5.3	5.3	5.3	10.2 9.3	9.8		2.3 2.2	2.3	
18-Sep-13	Fine	Moderate	12:29	Surface	1	28.5 28.5	28.5	8.3 8.3	8.3	26.3 26.3	26.3	83.1 85.4	84.3	5.8 5.9	5.9	5.9	7.1 6.9	7.0	11.9	11.2 5.0	8.1	9.2
				Middle	5	28.2 28.3	28.3	8.3 8.3	8.3	27.3 27.1	27.2	82.7 83.9	83.3	5.7 5.8	5.8		9.2 8.8	9.0		10.8 10.4	10.6	
				Bottom	9	28.2 28.2	28.2	8.3 8.3	8.3	27.5 27.6	27.6	81.8 82.3	82.1	5.7 5.7	5.7	5.7	19.4 20.0	19.7		10.4 7.6	9.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST1 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	13:55	Surface	1	28.1 28.1	28.1	8.1 8.1	8.1	25.1 25.1	25.1	93.0 92.1	92.6	6.3 6.3	6.3	6.2	5.3 5.5	5.4	12.6	9.0 5.0	7.0	7.8
				Middle	5	27.5 27.5	27.5	8.1 8.1	8.1	26.3 26.2	26.3	87.5 87.2	87.4	6.0 6.0	6.0		6.8 7.3	7.1		9.8 7.8	8.8	
				Bottom	9	27.4 27.4	27.4	8.1 8.1	8.1	26.9 26.9	26.9	84.4 84.3	84.4	5.8 5.7	5.8	5.8	24.2 26.2	25.2		7.2 7.8	7.5	
23-Sep-13	Cloudy	Rough	14:45	Surface	1	28.1 28.1	28.1	8.2 8.2	8.2	23.8 23.8	23.8	91.7 91.3	91.5	6.5 6.4	6.5	6.5	9.8 9.7	9.8	17.1	16.2 5.0	10.6	12.1
				Middle	5	27.8 27.8	27.8	8.2 8.2	8.2	24.3 24.2	24.3	89.6 90.3	90.0	6.3 6.4	6.4		10.8 11.4	11.1		14.7 16.3	15.5	
				Bottom	9	27.7 27.7	27.7	8.2 8.2	8.2	25.2 25.2	25.2	87.3 87.6	87.5	6.2 6.2	6.2	6.2	29.4 31.2	30.3		10.2 10.0	10.1	
25-Sep-13	Sunny	Calm	15:20	Surface	1	28.5 28.4	28.5	8.1 8.1	8.1	20.0 20.2	20.1	89.0 86.1	87.6	6.1 5.9	6.0	5.9	3.9 3.8	3.9	11.7	13.7 5.0	9.4	8.1
				Middle	5	27.8 27.8	27.8	8.2 8.2	8.2	25.8 25.7	25.8	83.7 83.1	83.4	5.7 5.7	5.7		12.8 10.6	11.7		3.1 6.5	4.8	
				Bottom	9	27.8 27.8	27.8	8.2 8.2	8.2	26.5 26.5	26.5	83.0 81.3	82.2	5.6 5.5	5.6	5.6	18.5 20.7	19.6		6.2 13.8	10.0	
28-Sep-13	Sunny	Calm	06:49	Surface	1	27.1 27.1	27.1	8.2 8.2	8.2	24.5 24.5	24.5	93.7 93.7	93.7	6.5 6.5	6.5	6.5	2.0 2.0	2.0	4.2	3.3 5.0	4.2	3.0
				Middle	5	27.2 27.2	27.2	8.2 8.2	8.2	24.8 24.9	24.9	93.3 93.2	93.3	6.5 6.4	6.5		2.0 2.0	2.0		2.4 2.0	2.2	
				Bottom	9	27.4 27.4	27.4	8.2 8.2	8.2	29.1 29.1	29.1	92.3 92.2	92.3	6.2 6.2	6.2	6.2	8.1 9.3	8.7		2.6 2.5	2.6	
30-Sep-13	Cloudy	Calm	09:49	Surface	1	26.7 26.6	26.7	8.2 8.2	8.2	28.4 28.4	28.4	97.6 97.7	97.7	6.7 6.7	6.7	6.7	1.4 1.3	1.4	1.6	2.0 5.0	3.5	2.7
				Middle	5	26.7 26.7	26.7	8.2 8.2	8.2	28.6 28.6	28.6	98.1 98.4	98.3	6.7 6.7	6.7		1.3 1.3	1.3		1.7 1.2	1.5	
				Bottom	9	27.0 27.0	27.0	8.2 8.2	8.2	29.1 29.1	29.1	98.9 98.1	98.5	6.7 6.6	6.7	6.7	1.9 2.0	2.0		1.7 4.2	3.0	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	18:21	Surface	1	28.5 28.5	28.5	7.8 7.8	7.8	11.7 12.0	11.9	85.3 85.0	85.2	6.2 6.2	6.2	6.5	4.9 5.2	5.1	6.1	4.3 3.5	3.9	3.5
				Middle	6	27.6 27.9	27.8	7.8 7.8	7.8	15.8 14.8	15.3	89.0 89.8	89.4	6.7 6.8	6.8		5.0 5.1	5.1		2.7 3.8	3.3	
				Bottom	11	26.3 26.3	26.3	7.8 7.8	7.8	24.6 24.4	24.5	72.5 71.5	72.0	5.4 5.3	5.4	5.4	8.2 8.1	8.2		3.3 3.5	3.4	
4-Sep-13	Cloudy	Moderate	19:20	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	19.7 19.8	19.8	68.5 68.1	68.3	5.2 5.2	5.2	5.5	9.3 9.5	9.4	10.4	2.8 4.6	3.7	3.0
				Middle	5	27.1 27.1	27.1	7.8 7.8	7.8	20.5 20.6	20.6	77.0 76.9	77.0	5.8 5.7	5.8		9.4 9.4	9.4		2.8 2.7	2.8	
				Bottom	9	27.0 27.0	27.0	7.8 7.8	7.8	21.8 21.8	21.8	78.9 77.7	78.3	5.8 5.7	5.8	5.8	12.5 12.4	12.5		2.3 2.9	2.6	
6-Sep-13	Fine	Calm	19:47	Surface	1	26.7 26.7	26.7	7.7 7.7	7.7	16.3 16.3	16.3	80.6 77.4	79.0	5.7 5.5	5.6	5.5	11.2 12.0	11.6	13.1	6.8 6.7	6.8	8.3
				Middle	6	26.5 26.6	26.6	7.7 7.7	7.7	17.9 17.5	17.7	76.2 76.4	76.3	5.4 5.4	5.4		13.8 13.9	13.9		8.5 8.0	8.3	
				Bottom	11	26.2 26.3	26.3	7.7 7.7	7.7	19.5 19.2	19.4	75.3 76.2	75.8	5.3 5.4	5.4	5.4	14.0 13.3	13.7		11.7 7.8	9.8	
9-Sep-13	Sunny	Moderate	08:49	Surface	1	27.2 27.1	27.2	7.6 7.6	7.6	16.3 16.5	16.4	77.5 77.4	77.5	5.6 5.6	5.6	5.6	1.6 1.4	1.5	4.6	3.9 3.7	3.8	3.5
				Middle	6.5	27.0 27.0	27.0	7.7 7.8	7.8	19.0 19.2	19.1	77.4 77.5	77.5	5.5 5.5	5.5		3.5 3.4	3.5		3.0 2.7	2.9	
				Bottom	12	26.8 26.8	26.8	7.8 7.8	7.8	21.5 21.6	21.6	74.7 75.4	75.1	5.3 5.3	5.3	5.3	9.7 8.0	8.9		3.3 4.3	3.8	
11-Sep-13	Sunny	Moderate	10:47	Surface	1	28.0 28.0	28.0	7.8 7.8	7.8	16.5 16.3	16.4	69.1 67.5	68.3	5.3 5.2	5.3	5.3	4.9 4.7	4.8	5.0	2.2 1.9	2.1	2.2
				Middle	5	27.8 27.7	27.8	7.8 7.8	7.8	18.9 19.8	19.4	69.5 69.6	69.6	5.3 5.3	5.3		3.2 3.8	3.5		2.3 1.9	2.1	
				Bottom	9	27.4 27.4	27.4	7.9 7.9	7.9	22.5 22.5	22.5	68.2 67.7	68.0	5.1 5.1	5.1	5.1	6.3 7.2	6.8		2.7 2.3	2.5	
14-Sep-13	Sunny	Moderate	14:53	Surface	1	28.4 28.5	28.5	7.9 7.9	7.9	14.9 14.8	14.9	87.8 88.9	88.4	6.3 6.4	6.4	6.4	2.6 2.4	2.5	3.9	1.6 2.8	2.2	2.3
				Middle	5	27.6 27.6	27.6	7.9 7.9	7.9	18.6 18.8	18.7	89.0 89.8	89.4	6.3 6.4	6.4		3.0 3.0	3.0		2.0 2.0	2.0	
				Bottom	9	27.1 27.2	27.2	8.0 8.0	8.0	23.4 23.3	23.4	84.3 87.0	85.7	5.9 6.1	6.0	6.0	6.5 5.9	6.2		2.8 2.6	2.7	
16-Sep-13	Sunny	Calm	16:58	Surface	1	28.2 28.2	28.2	7.9 7.9	7.9	19.3 19.1	19.2	90.1 90.6	90.4	6.3 6.4	6.4	6.2	3.4 2.8	3.1	5.5	4.7 4.5	4.6	4.9
				Middle	6	27.9 27.9	27.9	7.9 8.0	8.0	20.7 20.8	20.8	87.3 85.1	86.2	6.1 5.9	6.0		5.2 5.4	5.3		4.7 4.0	4.4	
				Bottom	11	27.4 27.4	27.4	8.0 8.0	8.0	24.2 24.2	24.2	75.7 75.6	75.7	5.2 5.2	5.2	5.2	8.3 8.1	8.2		6.3 5.0	5.7	
18-Sep-13	Fine	Moderate	18:14	Surface	1	28.1 28.1	28.1	8.1 8.1	8.1	22.5 22.5	22.5	81.8 82.1	82.0	5.5 5.5	5.5	5.5	10.4 9.9	10.2	10.8	8.0 6.8	7.4	8.8
				Middle	5	28.1 28.1	28.1	8.1 8.1	8.1	23.2 23.3	23.3	82.2 81.8	82.0	5.5 5.5	5.5		11.0 10.5	10.8		10.4 10.4	10.4	
				Bottom	9	28.1 28.1	28.1	8.1 8.1	8.1	23.4 23.6	23.5	81.9 81.5	81.7	5.5 5.5	5.5	5.5	11.0 12.0	11.5		10.0 7.2	8.6	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST1 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	19:41	Surface	1	28.3 28.3	28.3	7.9 7.9	7.9	20.6 20.6	20.6	79.2 79.1	79.2	5.5 5.5	5.5	5.5	11.3 11.6	11.5	16.4	4.8 4.5	4.7	5.2
				Middle	5	28.1 28.1	28.1	8.0 8.0	8.0	23.3 23.1	23.2	79.1 79.0	79.1	5.4 5.4	5.4		16.6 16.5	16.6		5.0 5.2	5.1	
				Bottom	9	27.9 27.8	27.9	8.0 8.0	8.0	25.0 25.5	25.3	79.9 80.0	80.0	5.5 5.5	5.5	5.5	21.2 20.9	21.1		5.3 6.0	5.7	
25-Sep-13	Sunny	Calm	11:10	Surface	1	28.0 28.0	28.0	8.1 8.1	8.1	20.4 20.6	20.5	78.2 77.2	77.7	5.5 5.4	5.5	5.4	7.1 7.7	7.4	13.1	6.8 8.8	7.8	13.3
				Middle	5	27.9 27.9	27.9	8.1 8.1	8.1	22.6 23.0	22.8	76.3 73.8	75.1	5.3 5.1	5.2		14.6 14.3	14.5		9.5 11.0	10.3	
				Bottom	9	27.8 27.8	27.8	8.2 8.2	8.2	24.3 24.2	24.3	73.5 71.5	72.5	5.1 5.0	5.1	5.1	17.1 17.8	17.5		14.6 28.8	21.7	
28-Sep-13	Fine	Calm	19:20	Surface	1	27.2 27.3	27.3	8.2 8.2	8.2	21.0 21.0	21.0	87.4 87.3	87.4	6.2 6.2	6.2	5.8	2.4 2.5	2.5	9.7	3.5 3.4	3.5	4.0
				Middle	4	27.4 27.4	27.4	8.2 8.2	8.2	28.8 28.8	28.8	79.7 79.8	79.8	5.4 5.4	5.4		12.6 12.4	12.5		4.2 4.9	4.6	
				Bottom	7	27.4 27.4	27.4	8.2 8.2	8.2	28.8 28.8	28.8	78.6 78.4	78.5	5.3 5.3	5.3	5.3	14.2 13.9	14.1		4.6 3.2	3.9	
30-Sep-13	Cloudy	Calm	15:48	Surface	1	26.7 26.6	26.7	8.2 8.2	8.2	26.2 26.1	26.2	88.1 87.3	87.7	6.1 6.0	6.1	6.0	3.1 3.4	3.3	7.6	3.9 3.5	3.7	5.7
				Middle	5	26.9 26.9	26.9	8.2 8.2	8.2	28.5 28.3	28.4	87.2 87.2	87.2	5.9 5.9	5.9		6.5 6.4	6.5		6.4 7.3	6.9	
				Bottom	9	27.1 27.1	27.1	8.2 8.2	8.2	29.4 29.5	29.5	85.8 85.5	85.7	5.8 5.8	5.8	5.8	13.3 12.8	13.1		6.0 7.1	6.6	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	10:39	Surface	1	28.0 28.0	28.0	7.8 7.8	7.8	9.7 9.5	9.6	91.8 91.6	91.7	6.8 6.8	6.8	5.9	4.4 4.4	4.4	7.4	1.3 1.2	1.3	1.8
				Middle	3.5	26.4 26.4	26.4	7.8 7.8	7.8	23.8 23.9	23.9	65.4 64.0	64.7	4.9 4.8	4.9		6.9 7.0	7.0		2.2 2.0	2.1	
				Bottom	6	25.8 25.9	25.9	7.8 7.8	7.8	26.6 26.7	26.7	69.0 68.7	68.9	5.1 5.1	5.1	5.1	10.6 10.8	10.7		2.2 2.0	2.1	
4-Sep-13	Cloudy	Moderate	12:12	Surface	1	27.0 27.0	27.0	7.9 7.9	7.9	19.4 19.4	19.4	72.9 73.2	73.1	5.6 5.6	5.6	5.4	3.4 3.3	3.4	5.3	4.2 4.9	4.6	3.9
				Middle	4	27.1 27.1	27.1	7.9 7.9	7.9	22.4 22.4	22.4	69.4 69.4	69.4	5.2 5.2	5.2		3.5 3.5	3.5		3.8 3.4	3.6	
				Bottom	7	26.4 26.5	26.5	7.9 7.9	7.9	28.3 28.2	28.3	67.2 66.5	66.9	4.9 4.8	4.9	4.9	8.7 9.1	8.9		4.1 3.1	3.6	
6-Sep-13	Sunny	Calm	13:03	Surface	1	26.7 26.5	26.6	7.8 7.8	7.8	18.8 18.9	18.9	82.9 81.8	82.4	5.9 5.8	5.9	5.7	4.2 4.6	4.4	9.9	4.2 4.8	4.5	3.8
				Middle	4	26.1 26.2	26.2	7.9 7.8	7.9	21.1 20.4	20.8	76.4 78.0	77.2	5.4 5.5	5.5		8.9 8.5	8.7		2.9 3.8	3.4	
				Bottom	7	25.9 25.9	25.9	7.9 7.9	7.9	22.1 22.7	22.4	72.7 72.9	72.8	5.1 5.2	5.2	5.2	15.6 17.3	16.5		3.2 3.9	3.6	
9-Sep-13	Sunny	Moderate	14:38	Surface	1	27.9 27.7	27.8	7.8 7.9	7.9	20.4 19.5	20.0	79.6 78.6	79.1	5.7 5.7	5.7	5.5	1.4 1.7	1.6	5.5	5.1 2.9	4.0	3.5
				Middle	3.5	27.0 26.9	27.0	7.9 7.9	7.9	23.0 22.1	22.6	73.7 73.7	73.7	5.3 5.3	5.3		5.1 5.2	5.2		2.7 4.1	3.4	
				Bottom	6	26.6 26.6	26.6	8.0 8.0	8.0	25.7 24.6	25.2	73.2 73.0	73.1	5.2 5.2	5.2	5.2	9.3 10.1	9.7		3.6 2.8	3.2	
11-Sep-13	Sunny	Moderate	16:54	Surface	1	28.3 28.2	28.3	7.9 8.0	8.0	19.4 19.9	19.7	79.4 70.1	74.8	5.9 5.3	5.6	5.5	3.3 3.2	3.3	5.8	3.5 3.0	3.3	3.0
				Middle	3	27.3 27.3	27.3	8.0 8.0	8.0	25.5 25.6	25.6	76.2 70.2	73.2	5.6 5.2	5.4		5.7 6.3	6.0		2.3 2.9	2.6	
				Bottom	5	27.2 27.2	27.2	8.0 8.0	8.0	26.1 26.2	26.2	70.4 69.2	69.8	5.2 5.1	5.2	5.2	8.2 8.0	8.1		3.0 3.1	3.1	
14-Sep-13	Sunny	Moderate	07:42	Surface	1	27.3 27.3	27.3	7.9 7.9	7.9	16.1 16.4	16.3	86.8 84.8	85.8	6.3 6.1	6.2	6.1	1.6 1.9	1.8	4.1	0.9 1.0	1.0	1.7
				Middle	4	27.0 27.0	27.0	8.0 8.0	8.0	24.9 25.0	25.0	85.4 83.3	84.4	5.9 5.8	5.9		3.5 3.8	3.7		1.3 1.7	1.5	
				Bottom	7	26.9 26.9	26.9	8.0 8.0	8.0	25.3 25.4	25.4	78.9 79.7	79.3	5.5 5.5	5.5	5.5	7.3 6.2	6.8		2.5 2.9	2.7	
16-Sep-13	Sunny	Calm	09:32	Surface	1	27.7 27.7	27.7	8.0 8.0	8.0	22.2 22.2	22.2	89.7 89.2	89.5	6.2 6.2	6.2	6.0	2.4 2.3	2.4	5.0	3.3 4.2	3.8	3.0
				Middle	4	27.5 27.5	27.5	8.0 8.0	8.0	24.0 23.5	23.8	82.4 83.7	83.1	5.7 5.8	5.8		4.3 3.5	3.9		2.2 2.9	2.6	
				Bottom	7	27.3 27.3	27.3	8.0 8.0	8.0	25.2 25.3	25.3	78.1 77.7	77.9	5.4 5.4	5.4	5.4	8.5 9.1	8.8		2.9 2.4	2.7	
18-Sep-13	Fine	Moderate	12:09	Surface	1	28.4 28.4	28.4	8.2 8.2	8.2	26.1 26.1	26.1	90.7 91.1	90.9	6.3 6.3	6.3	6.3	8.6 9.0	8.8	9.4	10.0 10.0	10.0	15.1
				Middle	4	28.2 28.2	28.2	8.2 8.2	8.2	26.7 26.5	26.6	89.9 90.9	90.4	6.2 6.3	6.3		9.5 8.5	9.0		6.6 8.0	7.3	
				Bottom	7	28.1 28.1	28.1	8.2 8.3	8.3	27.1 27.1	27.1	88.7 90.2	89.5	6.2 6.3	6.3	6.3	10.3 10.5	10.4		24.8 31.2	28.0	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST2 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	14:18	Surface	1	28.3 28.3	28.3	8.1 8.1	8.1	25.0 24.9	25.0	90.0 89.6	89.8	6.1 6.1	6.1	6.0	6.2 5.7	6.0	12.7	6.7 10.5	8.6	7.7
				Middle	4	27.5 27.5	27.5	8.1 8.1	8.1	26.6 26.6	26.6	87.3 85.6	86.5	6.0 5.8	5.9		9.9 10.1	10.0		7.3 7.5	7.4	
				Bottom	7	27.4 27.4	27.4	8.1 8.1	8.1	27.0 27.0	27.0	82.5 82.1	82.3	5.6 5.6	5.6	5.6	21.6 22.6	22.1		6.7 7.3	7.0	
23-Sep-13	Cloudy	Rough	14:22	Surface	1	28.2 28.2	28.2	8.2 8.2	8.2	23.1 23.1	23.1	101.4 100.7	101.1	7.2 7.1	7.2	6.8	11.0 10.2	10.6	17.8	7.3 7.3	7.3	9.2
				Middle	4	28.0 28.0	28.0	8.2 8.2	8.2	23.1 23.1	23.1	88.2 88.7	88.5	6.3 6.3	6.3		12.0 12.5	12.3		8.8 9.3	9.1	
				Bottom	7	27.8 27.7	27.8	8.1 8.1	8.1	24.2 24.4	24.3	81.2 81.0	81.1	5.8 5.8	5.8	5.8	27.1 33.8	30.5		11.5 11.0	11.3	
25-Sep-13	Sunny	Calm	15:34	Surface	1	28.6 28.6	28.6	8.1 8.1	8.1	18.8 18.8	18.8	84.4 82.0	83.2	5.7 5.5	5.6	5.5	2.8 3.3	3.1	12.4	3.6 3.1	3.4	7.7
				Middle	4	28.0 27.9	28.0	8.2 8.2	8.2	22.7 23.2	23.0	79.5 79.0	79.3	5.3 5.3	5.3		10.8 11.9	11.4		5.8 6.6	6.2	
				Bottom	7	27.8 27.8	27.8	8.2 8.2	8.2	25.7 25.7	25.7	77.6 76.3	77.0	5.2 5.1	5.2	5.2	23.0 22.3	22.7		14.0 13.0	13.5	
28-Sep-13	Sunny	Calm	06:40	Surface	1	27.0 27.0	27.0	8.1 8.1	8.1	21.7 21.7	21.7	92.3 92.4	92.4	6.5 6.5	6.5	6.3	2.1 2.1	2.1	7.4	2.7 1.5	2.1	2.4
				Middle	4	27.4 27.4	27.4	8.2 8.2	8.2	28.3 28.3	28.3	88.0 88.0	88.0	6.0 5.9	6.0		9.8 9.8	9.8		2.1 3.7	2.9	
				Bottom	7	27.4 27.4	27.4	8.2 8.2	8.2	28.6 28.6	28.6	86.0 86.1	86.1	5.8 5.8	5.8	5.8	10.3 10.1	10.2		2.1 2.1	2.1	
30-Sep-13	Cloudy	Calm	10:09	Surface	1	26.5 26.5	26.5	8.2 8.2	8.2	27.8 27.9	27.9	86.5 85.0	85.8	5.9 5.8	5.9	5.9	1.9 2.3	2.1	3.2	2.4 2.1	2.3	2.3
				Middle	4	26.8 26.8	26.8	8.2 8.2	8.2	28.4 28.4	28.4	86.1 84.6	85.4	5.9 5.8	5.9		2.5 2.5	2.5		2.2 2.0	2.1	
				Bottom	7	27.3 27.2	27.3	8.2 8.2	8.2	29.7 29.7	29.7	83.3 83.5	83.4	5.6 5.6	5.6	5.6	5.3 4.4	4.9		3.1 2.1	2.6	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	17:50	Surface	1	28.5 28.6	28.6	7.9 7.9	7.9	13.1 12.9	13.0	96.9 96.1	96.5	7.0 6.9	7.0	6.5	5.0 5.5	5.3	7.0	3.5 3.5	3.5	3.5
				Middle	4	27.0 27.0	27.0	7.8 7.8	7.8	20.5 20.5	20.5	79.6 79.1	79.4	6.0 5.9	6.0		7.2 7.5	7.4		3.2 4.2	3.7	
				Bottom	7	26.7 26.7	26.7	7.8 7.8	7.8	21.7 21.9	21.8	79.1 77.8	78.5	5.9 5.8	5.9	5.9	8.4 8.4	8.4		3.7 2.7	3.2	
4-Sep-13	Cloudy	Moderate	18:39	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	19.6 19.6	19.6	68.3 68.3	68.3	5.2 5.2	5.2	5.5	9.3 9.4	9.4	11.0	4.0 3.2	3.6	3.2
				Middle	4.5	27.1 27.1	27.1	7.8 7.8	7.8	20.3 20.3	20.3	77.2 77.3	77.3	5.8 5.8	5.8		11.1 11.1	11.1		2.7 3.3	3.0	
				Bottom	8	27.0 27.0	27.0	7.8 7.8	7.8	22.0 21.9	22.0	70.0 69.7	69.9	5.1 5.1	5.1	5.1	12.4 12.5	12.5		3.2 2.7	3.0	
6-Sep-13	Fine	Calm	19:18	Surface	1	26.9 26.9	26.9	7.6 7.6	7.6	15.2 15.2	15.2	81.5 82.3	81.9	5.8 5.9	5.9	5.7	7.3 7.3	7.3	10.2	8.3 8.0	8.2	8.6
				Middle	4	26.7 26.7	26.7	7.7 7.6	7.7	16.6 16.3	16.5	77.1 77.1	77.1	5.5 5.5	5.5		9.1 9.4	9.3		8.3 10.0	9.2	
				Bottom	7	26.4 26.3	26.4	7.7 7.7	7.7	18.9 19.2	19.1	73.8 74.7	74.3	5.2 5.3	5.3	5.3	13.6 14.4	14.0		8.8 8.0	8.4	
9-Sep-13	Sunny	Moderate	08:22	Surface	1	27.1 27.1	27.1	7.6 7.6	7.6	16.7 16.7	16.7	77.9 77.7	77.8	5.6 5.6	5.6	5.6	2.4 2.5	2.5	5.6	3.3 3.4	3.4	3.3
				Middle	4	27.1 27.1	27.1	7.6 7.6	7.6	17.2 17.1	17.2	76.9 77.0	77.0	5.5 5.5	5.5		4.0 4.1	4.1		2.7 2.6	2.7	
				Bottom	7	26.8 26.8	26.8	7.8 7.8	7.8	21.4 21.4	21.4	76.3 76.4	76.4	5.4 5.4	5.4	5.4	10.5 9.9	10.2		4.2 3.3	3.8	
11-Sep-13	Sunny	Moderate	11:15	Surface	1	28.2 28.2	28.2	7.7 7.8	7.8	16.1 16.1	16.1	70.9 68.1	69.5	5.4 5.2	5.3	5.3	2.7 3.0	2.9	5.5	2.3 4.1	3.2	3.1
				Middle	3.5	27.3 27.3	27.3	8.0 8.0	8.0	25.2 24.7	25.0	70.0 68.2	69.1	5.2 5.1	5.2		6.2 6.2	6.2		2.4 2.9	2.7	
				Bottom	6	27.3 27.2	27.3	8.0 7.9	8.0	24.9 25.9	25.4	68.0 68.8	68.4	5.1 5.1	5.1	5.1	7.5 7.5	7.5		4.0 2.6	3.3	
14-Sep-13	Sunny	Moderate	15:21	Surface	1	28.6 28.4	28.5	7.9 7.9	7.9	14.4 14.9	14.7	96.2 91.0	93.6	6.9 6.5	6.7	6.6	2.0 2.5	2.3	4.9	2.2 2.0	2.1	2.1
				Middle	4.5	27.4 27.5	27.5	8.0 8.0	8.0	19.6 19.6	19.6	90.5 89.1	89.8	6.4 6.3	6.4		3.1 2.8	3.0		2.6 1.5	2.1	
				Bottom	8	27.1 27.1	27.1	8.0 8.0	8.0	23.4 23.4	23.4	81.9 81.3	81.6	5.7 5.7	5.7	5.7	9.7 8.9	9.3		2.6 1.4	2.0	
16-Sep-13	Sunny	Calm	16:25	Surface	1	28.2 28.2	28.2	7.9 7.9	7.9	19.4 19.6	19.5	92.6 90.9	91.8	6.5 6.4	6.5	6.2	4.6 4.6	4.6	8.7	5.5 4.3	4.9	5.4
				Middle	4	27.9 28.0	28.0	7.9 7.9	7.9	21.0 20.6	20.8	83.0 82.5	82.8	5.8 5.8	5.8		7.3 7.1	7.2		6.0 6.5	6.3	
				Bottom	7	27.6 27.5	27.6	7.9 7.9	7.9	22.1 22.6	22.4	75.5 74.5	75.0	5.3 5.2	5.3	5.3	13.2 15.6	14.4		5.8 4.2	5.0	
18-Sep-13	Fine	Moderate	17:49	Surface	1	28.2 28.2	28.2	8.0 8.0	8.0	22.0 22.0	22.0	87.2 85.1	86.2	6.0 5.9	6.0	6.0	14.2 13.6	13.9	15.5	9.6 4.0	6.8	8.5
				Middle	4	28.2 28.2	28.2	8.1 8.1	8.1	22.7 22.6	22.7	86.1 84.1	85.1	5.9 5.8	5.9		15.2 15.1	15.2		8.4 8.0	8.2	
				Bottom	7	28.1 28.1	28.1	8.1 8.1	8.1	23.6 23.8	23.7	84.1 82.2	83.2	5.8 5.6	5.7	5.7	17.2 17.3	17.3		10.4 10.4	10.4	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST2 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	19:18	Surface	1	28.4 28.3	28.4	7.9 7.9	7.9	20.4 20.5	20.5	79.8 79.2	79.5	5.5 5.5	5.5	5.5	11.1 11.5	11.3	14.8	5.8 5.8	5.8	6.1
				Middle	3.5	28.2 28.2	28.2	7.9 7.9	7.9	21.7 22.3	22.0	79.4 79.2	79.3	5.5 5.5	5.5		15.3 15.0	15.2		7.2 6.3	6.8	
				Bottom	6	27.8 27.8	27.8	8.0 8.0	8.0	25.3 25.4	25.4	80.7 80.6	80.7	5.5 5.5	5.5	5.5	17.1 18.8	18.0		5.8 5.8	5.8	
25-Sep-13	Sunny	Calm	11:29	Surface	1	28.3 28.2	28.3	8.0 8.0	8.0	17.2 17.2	17.2	82.0 81.3	81.7	5.8 5.7	5.8	5.8	4.4 4.4	4.4	7.7	4.1 4.8	4.5	4.7
				Middle	4	28.1 28.1	28.1	8.0 8.0	8.0	18.2 18.1	18.2	81.5 80.0	80.8	5.7 5.6	5.7		5.1 5.1	5.1		4.4 4.4	4.4	
				Bottom	7	27.9 27.9	27.9	8.2 8.2	8.2	23.8 23.7	23.8	79.7 78.7	79.2	5.5 5.4	5.5	5.5	13.8 13.2	13.5		6.0 4.5	5.3	
28-Sep-13	Fine	Calm	19:07	Surface	1	27.5 27.4	27.5	8.1 8.2	8.2	20.4 20.4	20.4	98.0 98.1	98.1	6.9 6.9	6.9	6.4	2.8 2.8	2.8	6.9	2.6 3.0	2.8	3.6
				Middle	4	27.4 27.4	27.4	8.2 8.2	8.2	28.2 28.2	28.2	85.5 85.9	85.7	5.8 5.8	5.8		7.4 7.1	7.3		3.4 4.8	4.1	
				Bottom	7	27.4 27.4	27.4	8.2 8.2	8.2	28.6 28.6	28.6	86.2 86.3	86.3	5.8 5.8	5.8	5.8	11.2 10.2	10.7		4.9 3.0	4.0	
30-Sep-13	Cloudy	Calm	16:03	Surface	1	26.7 26.7	26.7	8.2 8.2	8.2	26.9 27.3	27.1	97.1 94.3	95.7	6.6 6.3	6.5	6.5	2.6 2.7	2.7	5.2	2.3 2.9	2.6	3.8
				Middle	4	26.9 26.8	26.9	8.2 8.2	8.2	28.2 27.6	27.9	95.5 94.1	94.8	6.4 6.3	6.4		3.6 2.9	3.3		3.8 6.6	5.2	
				Bottom	7	27.2 27.1	27.2	8.2 8.2	8.2	29.3 29.1	29.2	92.3 92.0	92.2	6.1 6.1	6.1	6.1	9.7 9.3	9.5		3.2 4.0	3.6	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST3 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	11:20	Surface	1	28.5 28.5	28.5	7.9 7.9	7.9	5.8 5.8	5.8	77.8 77.6	77.7	5.8 5.8	5.8	5.6	7.2 7.2	7.2	5.2	2.9 2.1	2.5	2.3
				Middle	7	27.6 27.6	27.6	7.9 7.9	7.9	20.8 20.6	20.7	71.3 71.2	71.3	5.4 5.4	5.4		3.9 3.6	3.8		2.7 2.1	2.4	
				Bottom	13	26.9 26.9	26.9	7.9 7.9	7.9	27.3 27.3	27.3	64.5 64.5	64.5	4.9 4.9	4.9	4.9	4.5 4.4	4.5		2.1 1.9	2.0	
4-Sep-13	Cloudy	Moderate	13:23	Surface	1	27.0 27.0	27.0	7.9 7.9	7.9	16.6 16.6	16.6	71.5 71.5	71.5	5.3 5.3	5.3	5.1	7.2 7.2	7.2	5.1	4.6 3.8	4.2	4.0
				Middle	7	27.1 27.1	27.1	7.9 7.9	7.9	22.1 22.0	22.1	66.6 65.8	66.2	4.9 4.9	4.9		3.1 3.2	3.2		5.2 3.2	4.2	
				Bottom	13	26.8 26.7	26.8	7.9 7.9	7.9	25.3 26.7	26.0	66.7 65.4	66.1	5.0 4.9	5.0	5.0	4.9 5.0	5.0		3.3 3.6	3.5	
6-Sep-13	Sunny	Calm	13:55	Surface	1	27.0 27.2	27.1	7.9 7.9	7.9	22.6 22.6	22.6	77.3 79.6	78.5	5.5 5.7	5.6	5.4	6.5 5.9	6.2	15.7	3.4 2.8	3.1	3.3
				Middle	6.5	26.5 26.5	26.5	7.9 7.9	7.9	24.2 23.9	24.1	71.4 72.6	72.0	5.1 5.2	5.2		14.2 13.7	14.0		3.4 3.7	3.6	
				Bottom	12	26.3 26.3	26.3	7.9 7.9	7.9	26.3 26.2	26.3	67.7 66.8	67.3	4.9 4.8	4.9	4.9	26.3 27.6	27.0		3.1 3.3	3.2	
9-Sep-13	Sunny	Moderate	14:56	Surface	1	27.9 27.8	27.9	7.8 7.9	7.9	20.5 20.7	20.6	70.5 73.7	72.1	4.9 5.2	5.1	5.2	1.8 2.1	2.0	4.2	3.4 4.4	3.9	3.2
				Middle	7	27.1 27.2	27.2	7.9 7.9	7.9	23.7 23.5	23.6	74.5 77.2	75.9	5.2 5.4	5.3		3.6 3.5	3.6		3.4 2.6	3.0	
				Bottom	13	26.9 26.9	26.9	7.9 7.9	7.9	24.8 24.9	24.9	72.4 72.6	72.5	5.0 5.0	5.0	5.0	7.1 7.0	7.1		2.6 2.8	2.7	
11-Sep-13	Sunny	Moderate	15:53	Surface	1	27.9 27.9	27.9	7.9 7.9	7.9	17.5 17.5	17.5	81.9 81.7	81.8	6.2 6.2	6.2	6.0	4.2 4.0	4.1	6.4	3.6 3.3	3.5	3.0
				Middle	6	27.1 27.1	27.1	8.0 8.0	8.0	22.4 22.3	22.4	76.2 76.4	76.3	5.8 5.8	5.8		5.7 5.8	5.8		3.4 2.7	3.1	
				Bottom	11	26.7 26.7	26.7	8.0 8.0	8.0	24.2 24.2	24.2	71.5 71.5	71.5	5.4 5.4	5.4	5.4	9.3 9.2	9.3		3.0 1.9	2.5	
14-Sep-13	Sunny	Moderate	07:30	Surface	1	27.8 27.8	27.8	8.0 8.0	8.0	20.1 20.0	20.1	80.0 79.9	80.0	5.5 5.5	5.5	5.5	2.9 3.0	3.0	4.5	2.7 3.0	2.9	2.3
				Middle	6.5	27.7 27.8	27.8	8.1 8.1	8.1	23.6 23.5	23.6	80.7 81.3	81.0	5.5 5.5	5.5		3.4 3.2	3.3		3.0 2.2	2.6	
				Bottom	12	27.4 27.4	27.4	8.1 8.1	8.1	25.4 25.4	25.4	75.3 74.7	75.0	5.1 5.0	5.1	5.1	6.8 7.4	7.1		1.5 1.3	1.4	
16-Sep-13	Sunny	Calm	10:04	Surface	1	28.1 28.0	28.1	8.1 8.1	8.1	23.4 25.5	24.5	120.1 119.1	119.6	8.3 8.2	8.3	7.5	3.4 3.5	3.5	3.6	5.2 3.3	4.3	4.6
				Middle	7	28.1 28.0	28.1	8.1 8.1	8.1	23.4 25.7	24.6	98.6 95.3	97.0	6.8 6.6	6.7		3.5 3.5	3.5		4.0 6.2	5.1	
				Bottom	13	28.0 28.0	28.0	8.1 8.1	8.1	25.4 25.7	25.6	78.6 78.4	78.5	5.3 5.3	5.3	5.3	3.7 4.1	3.9		4.7 4.3	4.5	
18-Sep-13	Fine	Moderate	12:36	Surface	1	28.1 28.1	28.1	8.2 8.2	8.2	26.1 26.1	26.1	93.7 94.1	93.9	6.4 6.4	6.4	6.5	12.3 15.3	13.8	15.6	10.0 9.2	9.6	8.9
				Middle	7.5	28.0 28.0	28.0	8.2 8.2	8.2	26.4 26.3	26.4	95.1 96.4	95.8	6.5 6.6	6.6		12.2 13.7	13.0		6.8 10.8	8.8	
				Bottom	14	28.0 28.0	28.0	8.2 8.2	8.2	26.4 26.4	26.4	93.0 93.6	93.3	6.3 6.4	6.4	6.4	20.4 19.5	20.0		6.2 10.4	8.3	

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST3 - Mid-Ebb Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Sunny	Moderate	14:04	Surface	1	29.0 29.0	29.0	8.1 8.1	8.1	24.1 24.1	24.1	70.4 71.1	70.8	5.4 5.4	5.4	5.4	6.4 6.2	6.3	6.7	5.3 4.0	4.7	4.7
				Middle	7	29.0 29.0	29.0	8.1 8.1	8.1	24.1 24.1	24.1	70.2 70.0	70.1	5.3 5.3	5.3		5.6 5.7	5.7		5.2 3.0	4.1	
				Bottom	13	28.7 28.7	28.7	8.1 8.1	8.1	24.4 24.3	24.4	68.3 67.7	68.0	5.2 5.2	5.2	5.2	8.4 7.7	8.1		5.2 5.3	5.3	
23-Sep-13	Cloudy	Rough	15:37	Surface	1	27.4 27.4	27.4	8.2 8.2	8.2	22.0 22.0	22.0	94.0 93.6	93.8	6.6 6.6	6.6	6.5	9.0 9.9	9.5	11.6	7.2 5.8	6.5	7.1
				Middle	7.5	27.1 27.2	27.2	8.2 8.2	8.2	23.0 22.5	22.8	91.4 91.8	91.6	6.4 6.4	6.4		9.6 8.7	9.2		7.8 7.2	7.5	
				Bottom	14	27.1 27.1	27.1	8.2 8.2	8.2	23.8 23.6	23.7	89.6 89.8	89.7	6.2 6.3	6.3	6.3	16.4 15.8	16.1		7.5 7.0	7.3	
25-Sep-13	Sunny	Calm	15:17	Surface	1	28.6 28.6	28.6	8.0 8.0	8.0	19.2 19.2	19.2	82.7 82.5	82.6	5.6 5.6	5.6	5.4	3.4 3.5	3.5	8.8	4.8 4.5	4.7	4.1
				Middle	7	27.9 27.9	27.9	8.1 8.1	8.1	26.9 26.9	26.9	78.1 78.6	78.4	5.2 5.2	5.2		10.6 10.8	10.7		3.5 4.5	4.0	
				Bottom	13	27.9 27.9	27.9	8.1 8.1	8.1	26.9 26.9	26.9	75.6 75.9	75.8	5.0 5.1	5.1	5.1	12.4 12.1	12.3		3.8 3.2	3.5	
28-Sep-13	Sunny	Calm	06:47	Surface	1	27.1 27.1	27.1	8.2 8.2	8.2	27.3 27.3	27.3	89.8 91.0	90.4	6.1 6.1	6.1	6.1	2.5 2.4	2.5	2.4	2.5 3.5	3.0	3.7
				Middle	6.5	27.2 27.2	27.2	8.2 8.2	8.2	27.7 27.7	27.7	88.3 91.3	89.8	5.9 6.1	6.0		2.2 1.8	2.0		3.9 5.9	4.9	
				Bottom	12	27.3 27.3	27.3	8.2 8.2	8.2	29.1 29.1	29.1	88.4 89.8	89.1	5.9 6.0	6.0	6.0	2.7 2.6	2.7		3.7 2.4	3.1	
30-Sep-13	Cloudy	Calm	09:48	Surface	1	27.3 27.3	27.3	8.3 8.3	8.3	29.4 29.4	29.4	78.9 79.4	79.2	5.3 5.3	5.3	5.3	1.6 2.0	1.8	5.3	4.6 3.1	3.9	3.5
				Middle	5.5	27.7 27.6	27.7	8.3 8.3	8.3	30.6 30.5	30.6	78.4 77.4	77.9	5.2 5.1	5.2		2.9 2.5	2.7		3.0 3.7	3.4	
				Bottom	10	28.0 28.0	28.0	8.3 8.3	8.3	31.1 31.1	31.1	75.2 76.1	75.7	5.0 5.0	5.0	5.0	11.0 11.6	11.3		3.3 3.1	3.2	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST3 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
2-Sep-13	Sunny	Calm	17:05	Surface	1	29.0 29.0	29.0	7.9 7.9	7.9	13.0 13.0	13.0	87.6 87.2	87.4	6.7 6.6	6.7	6.3	5.1 5.3	5.2	7.1	4.3 3.7	4.0	4.5
				Middle	5.5	27.4 27.4	27.4	7.8 7.8	7.8	22.6 22.6	22.6	80.8 80.4	80.6	5.9 5.8	5.9		6.0 6.1	6.1		4.5 5.0	4.8	
				Bottom	10	27.1 27.1	27.1	7.8 7.8	7.8	25.4 25.3	25.4	71.2 71.5	71.4	5.4 5.4	5.4	5.4	9.9 9.8	9.9		4.7 4.5	4.6	
4-Sep-13	Cloudy	Moderate	17:43	Surface	1	27.1 27.1	27.1	7.8 7.8	7.8	12.8 12.8	12.8	69.7 68.8	69.3	5.2 5.2	5.2	5.3	5.5 5.5	5.5	7.0	2.6 3.4	3.0	3.1
				Middle	6	27.1 27.1	27.1	7.8 7.8	7.8	20.4 20.5	20.5	72.1 71.5	71.8	5.4 5.3	5.4		6.2 6.2	6.2		3.4 2.9	3.2	
				Bottom	11	27.0 27.0	27.0	7.8 7.8	7.8	26.0 26.0	26.0	68.6 68.6	68.6	5.0 5.0	5.0	5.0	9.4 9.3	9.4		3.0 3.3	3.2	
6-Sep-13	Fine	Calm	19:15	Surface	1	27.4 27.3	27.4	7.7 7.8	7.8	18.4 18.8	18.6	76.6 77.8	77.2	5.5 5.6	5.6	5.3	8.5 9.3	8.9	16.0	10.3 10.3	10.3	9.2
				Middle	6	26.8 26.8	26.8	7.8 7.8	7.8	21.6 21.5	21.6	68.6 68.2	68.4	4.9 4.8	4.9		13.9 12.9	13.4		9.7 8.3	9.0	
				Bottom	11	26.5 26.5	26.5	7.9 7.9	7.9	23.2 23.2	23.2	67.6 66.7	67.2	4.8 4.8	4.8	4.8	25.4 26.1	25.8		7.5 9.0	8.3	
9-Sep-13	Sunny	Moderate	09:26	Surface	1	27.4 27.4	27.4	7.7 7.7	7.7	19.8 19.8	19.8	73.2 72.3	72.8	5.2 5.1	5.2	5.2	3.5 3.7	3.6	5.2	2.1 2.2	2.2	2.2
				Middle	6.5	27.4 27.4	27.4	7.7 7.7	7.7	19.8 19.8	19.8	73.5 73.0	73.3	5.2 5.2	5.2		5.6 5.4	5.5		2.0 2.2	2.1	
				Bottom	12	27.4 27.4	27.4	7.7 7.7	7.7	20.1 20.0	20.1	72.0 72.7	72.4	5.1 5.1	5.1	5.1	6.3 6.8	6.6		2.3 2.3	2.3	
11-Sep-13	Sunny	Moderate	11:39	Surface	1	27.4 27.4	27.4	7.7 7.7	7.7	15.8 15.8	15.8	69.7 69.8	69.8	5.3 5.3	5.3	5.3	4.3 3.9	4.1	6.0	3.0 2.7	2.9	2.8
				Middle	7	27.3 27.3	27.3	7.8 7.8	7.8	17.3 17.2	17.3	69.4 69.4	69.4	5.3 5.3	5.3		5.1 4.7	4.9		3.2 1.9	2.6	
				Bottom	13	27.0 27.0	27.0	7.9 7.9	7.9	20.3 20.3	20.3	67.8 67.9	67.9	5.2 5.2	5.2	5.2	8.9 8.8	8.9		3.2 2.3	2.8	
14-Sep-13	Sunny	Moderate	15:12	Surface	1	28.7 28.9	28.8	7.9 7.9	7.9	16.8 15.3	16.1	102.2 102.1	102.2	7.0 7.0	7.0	6.5	2.9 2.7	2.8	6.6	3.2 2.4	2.8	2.6
				Middle	6	27.8 27.9	27.9	8.0 8.0	8.0	24.3 23.3	23.8	87.4 87.2	87.3	6.0 6.0	6.0		4.1 3.9	4.0		1.5 2.2	1.9	
				Bottom	11	27.6 27.6	27.6	8.0 8.1	8.1	26.5 26.8	26.7	79.5 76.1	77.8	5.5 5.2	5.4	5.4	13.2 12.7	13.0		4.7 1.5	3.1	
16-Sep-13	Sunny	Calm	16:05	Surface	1	28.6 28.6	28.6	8.0 8.0	8.0	22.9 22.9	22.9	98.4 100.9	99.7	6.7 6.9	6.8	6.2	5.6 5.6	5.6	6.7	5.8 6.0	5.9	5.4
				Middle	5.5	28.5 28.5	28.5	8.0 8.0	8.0	23.1 23.1	23.1	83.2 77.9	80.6	5.6 5.3	5.5		7.3 6.9	7.1		4.5 5.7	5.1	
				Bottom	10	28.4 28.4	28.4	8.0 8.0	8.0	22.7 23.3	23.0	80.2 76.8	78.5	5.5 5.2	5.4	5.4	7.5 7.5	7.5		5.2 5.2	5.2	
18-Sep-13	Fine	Moderate	17:37	Surface	1	28.1 28.0	28.1	8.0 8.0	8.0	22.8 22.7	22.8	90.0 90.1	90.1	6.2 6.3	6.3	6.3	12.1 11.8	12.0	14.4	13.6 13.2	13.4	14.2
				Middle	6.5	28.1 28.1	28.1	8.1 8.1	8.1	24.2 24.3	24.3	89.6 89.7	89.7	6.2 6.2	6.2		14.1 14.2	14.2		14.8 11.2	13.0	
				Bottom	12	28.1 28.1	28.1	8.1 8.1	8.1	24.7 24.7	24.7	91.0 90.7	90.9	6.2 6.2	6.2	6.2	16.1 17.6	16.9		18.8 13.6	16.2	

Remarks: *DA: Depth-Averaged

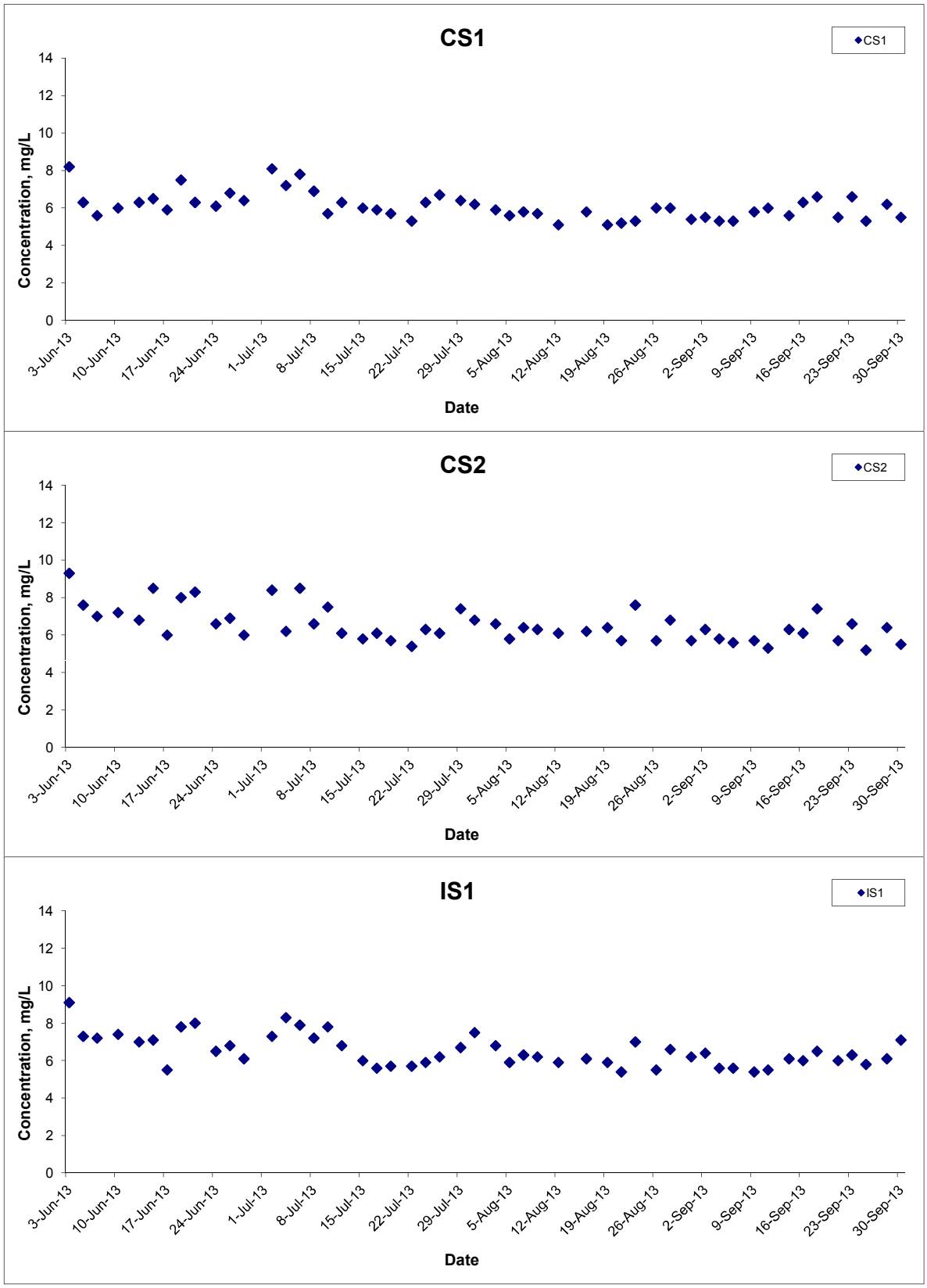
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST3 - Mid-Flood Tide

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)		
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Value	Average	DA*
21-Sep-13	Fine	Moderate	19:00	Surface	1	28.9 28.9	28.9	8.1 8.1	8.1	22.9 22.9	22.9	91.5 91.6	91.6	6.3 6.3	6.3	6.3	10.5 10.4	10.5	13.4	9.5 10.3	9.9	9.1
				Middle	6	28.9 28.9	28.9	8.1 8.1	8.1	22.9 22.9	22.9	91.0 90.1	90.6	6.3 6.2	6.3		10.0 10.0	10.0		9.3 8.5	8.9	
				Bottom	11	28.9 28.9	28.9	8.1 8.1	8.1	23.5 23.6	23.6	90.2 88.3	89.3	6.2 6.1	6.2	6.2	19.4 19.7	19.6		9.7 7.0	8.4	
25-Sep-13	Sunny	Calm	11:41	Surface	1	28.2 28.2	28.2	8.0 8.0	8.0	18.4 18.4	18.4	79.6 79.8	79.7	5.4 5.5	5.5	5.5	5.0 5.6	5.3	5.9	8.8 8.0	8.4	8.3
				Middle	6.5	28.0 28.0	28.0	8.1 8.1	8.1	20.6 20.6	20.6	78.6 78.9	78.8	5.3 5.4	5.4		6.3 6.2	6.3		7.7 7.3	7.5	
				Bottom	12	28.1 28.1	28.1	8.1 8.1	8.1	20.7 20.7	20.7	77.1 76.3	76.7	5.2 5.2	5.2	5.2	6.1 6.2	6.2		9.0 9.0	9.0	
28-Sep-13	Fine	Calm	19:00	Surface	1	27.3 27.3	27.3	8.1 8.1	8.1	23.5 23.5	23.5	89.2 88.2	88.7	6.0 5.9	6.0	5.9	7.0 7.0	7.0	8.8	6.1 4.8	5.5	5.3
				Middle	7	27.3 27.3	27.3	8.1 8.1	8.1	27.8 27.6	27.7	85.8 87.6	86.7	5.6 5.8	5.7		4.4 4.3	4.4		5.5 4.9	5.2	
				Bottom	13	27.3 27.3	27.3	8.1 8.1	8.1	29.0 29.0	29.0	76.0 78.2	77.1	5.0 5.1	5.1	5.1	14.5 15.4	15.0		6.1 4.1	5.1	
30-Sep-13	Cloudy	Calm	15:38	Surface	1	27.4 27.4	27.4	8.2 8.2	8.2	29.4 29.3	29.4	92.2 84.0	88.1	6.1 5.6	5.9	5.7	3.5 3.7	3.6	7.3	3.7 6.1	4.9	4.0
				Middle	5	27.5 27.8	27.7	8.2 8.2	8.2	29.8 31.0	30.4	85.5 80.2	82.9	5.7 5.3	5.5		5.9 6.2	6.1		3.4 3.4	3.4	
				Bottom	9	27.8 27.9	27.9	8.2 8.3	8.3	31.0 31.1	31.1	82.7 79.3	81.0	5.5 5.2	5.4	5.4	12.1 12.4	12.3		3.6 3.5	3.6	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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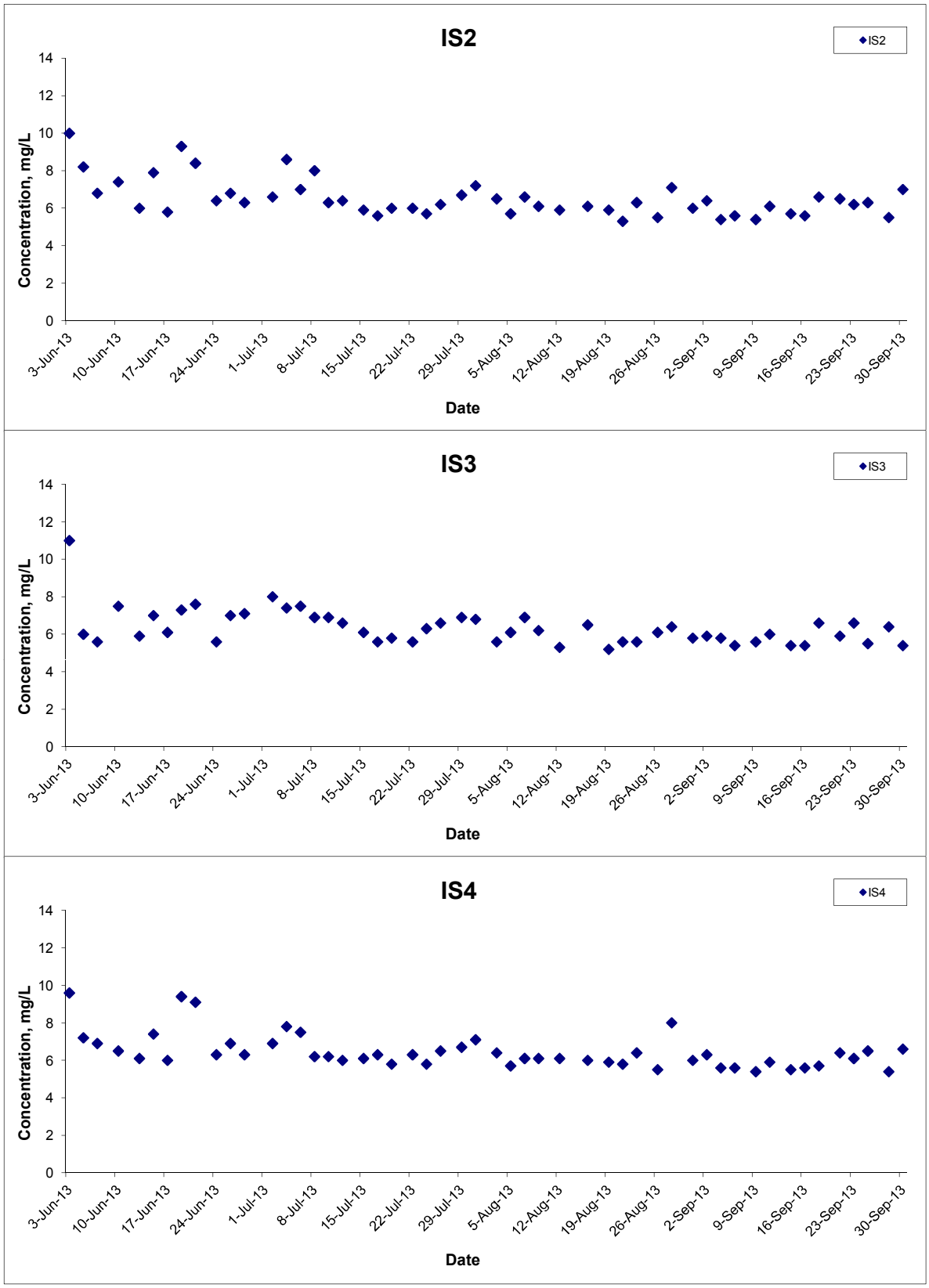
Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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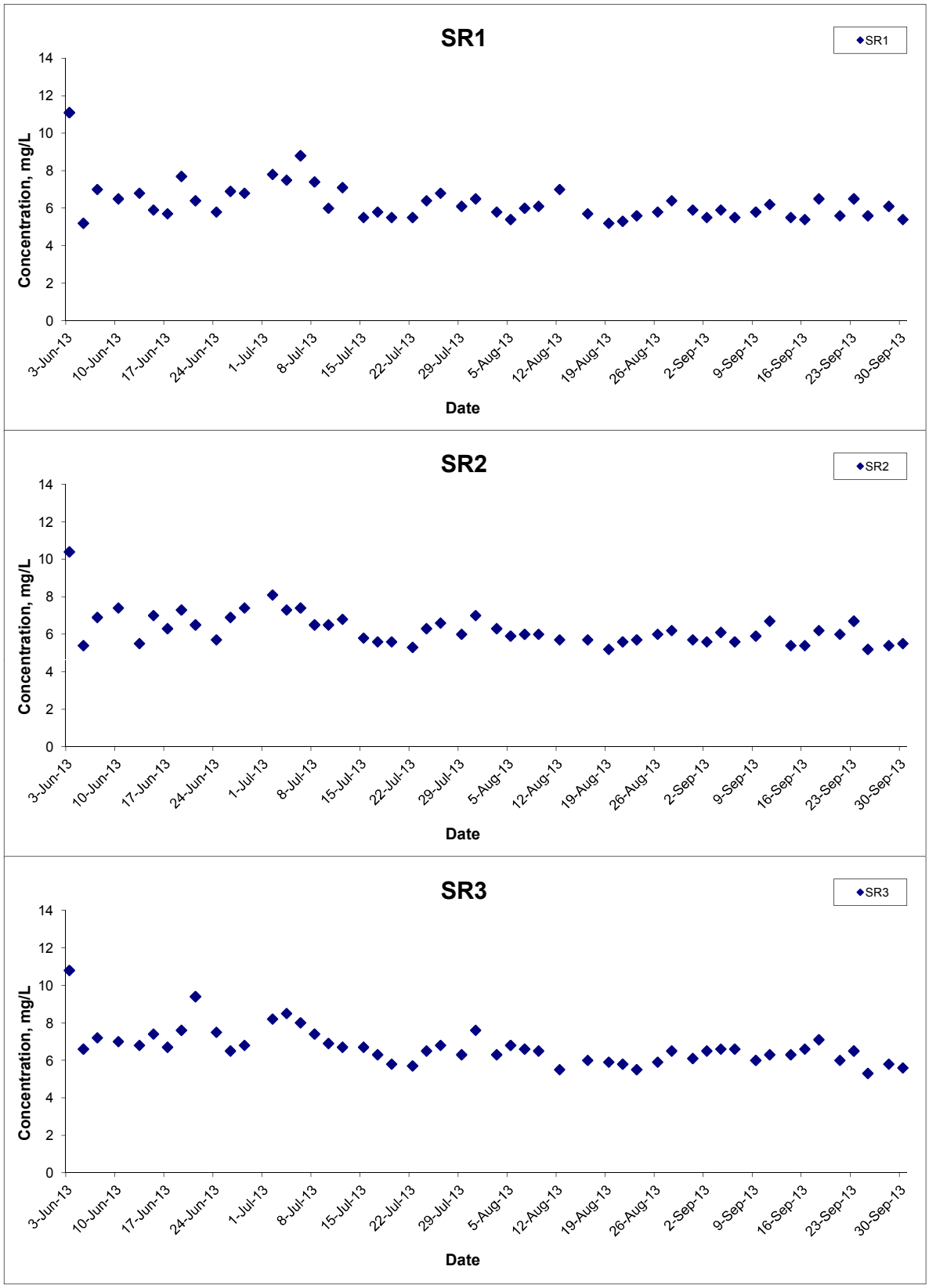
Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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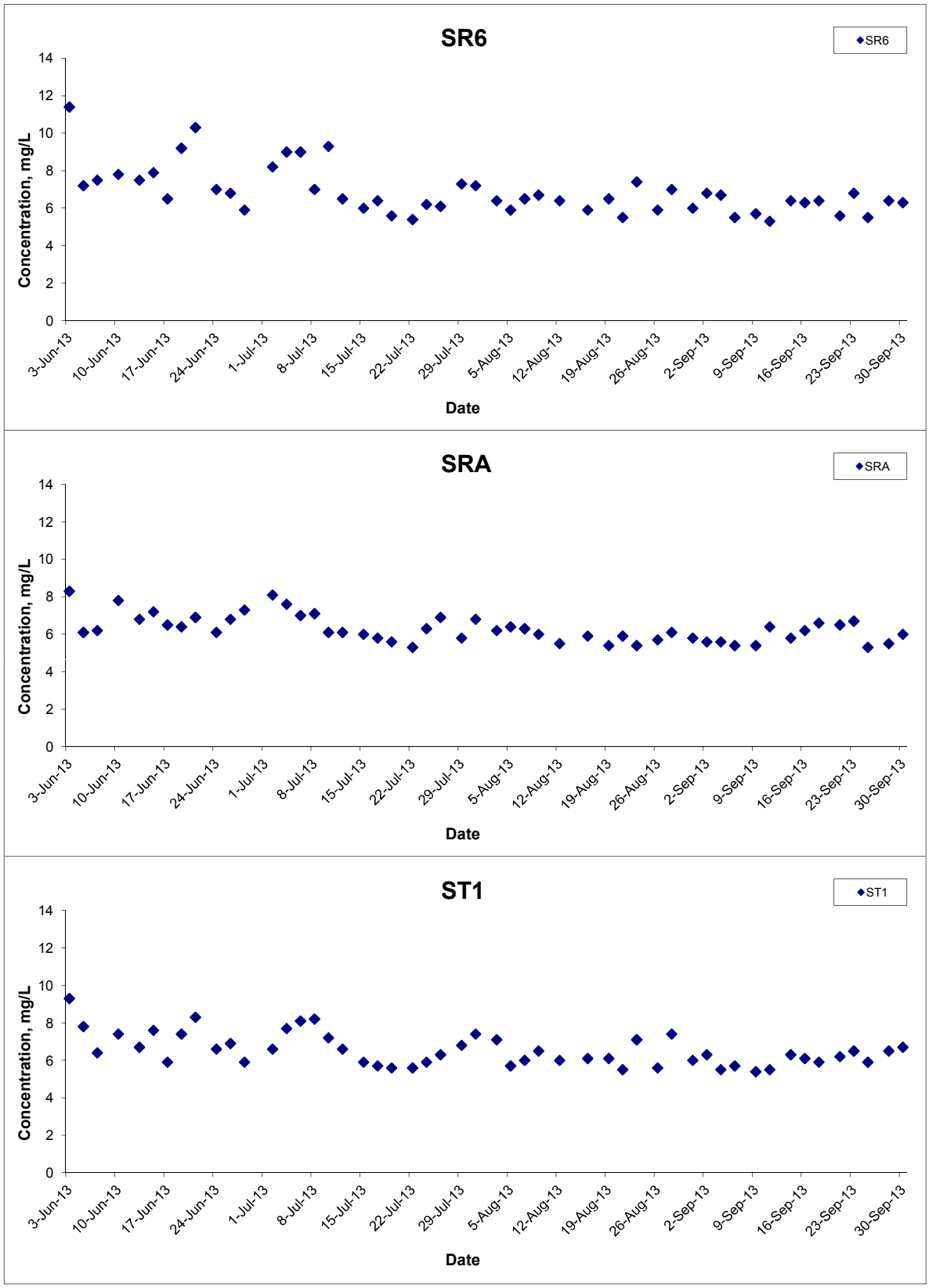
Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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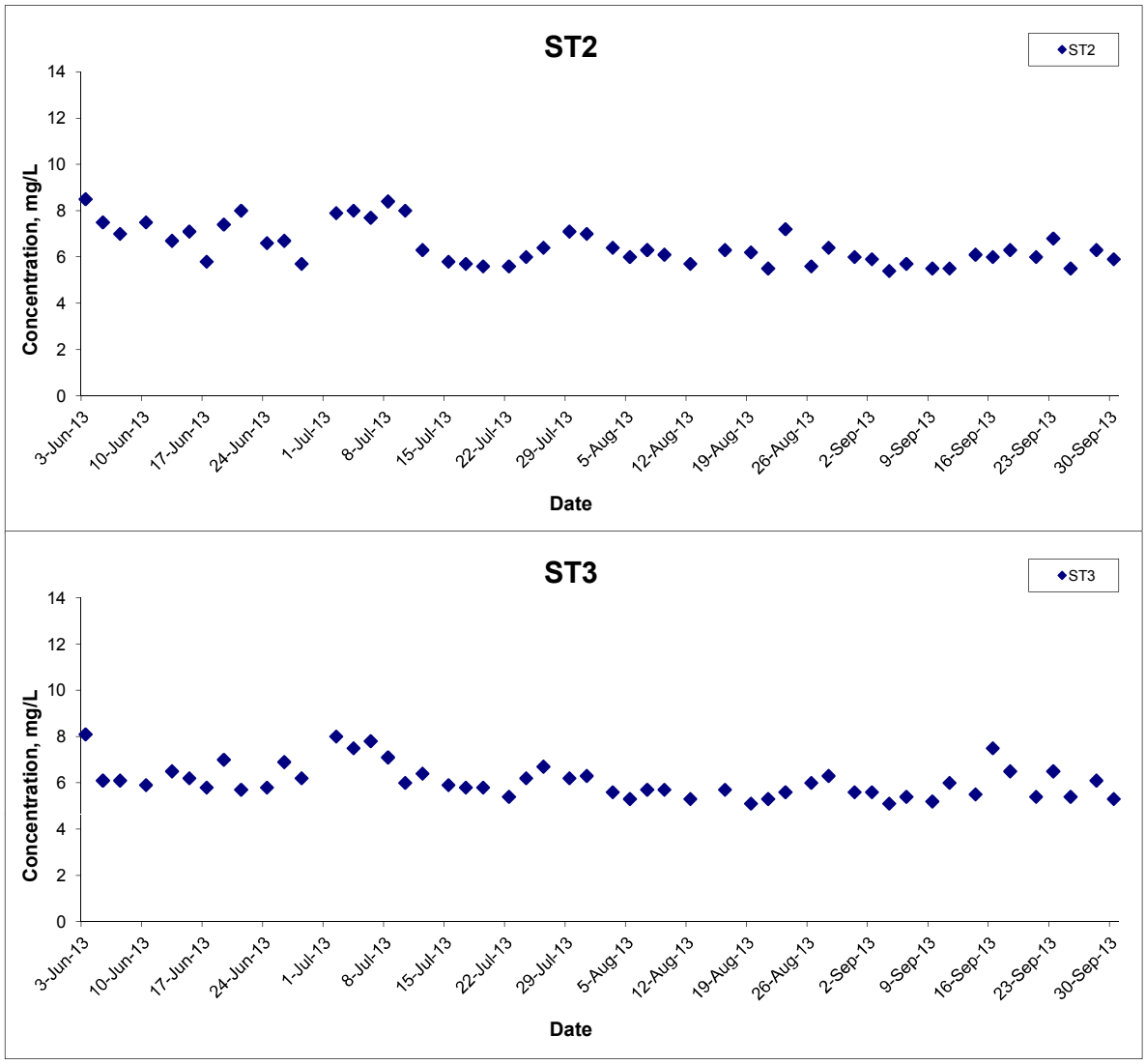
Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



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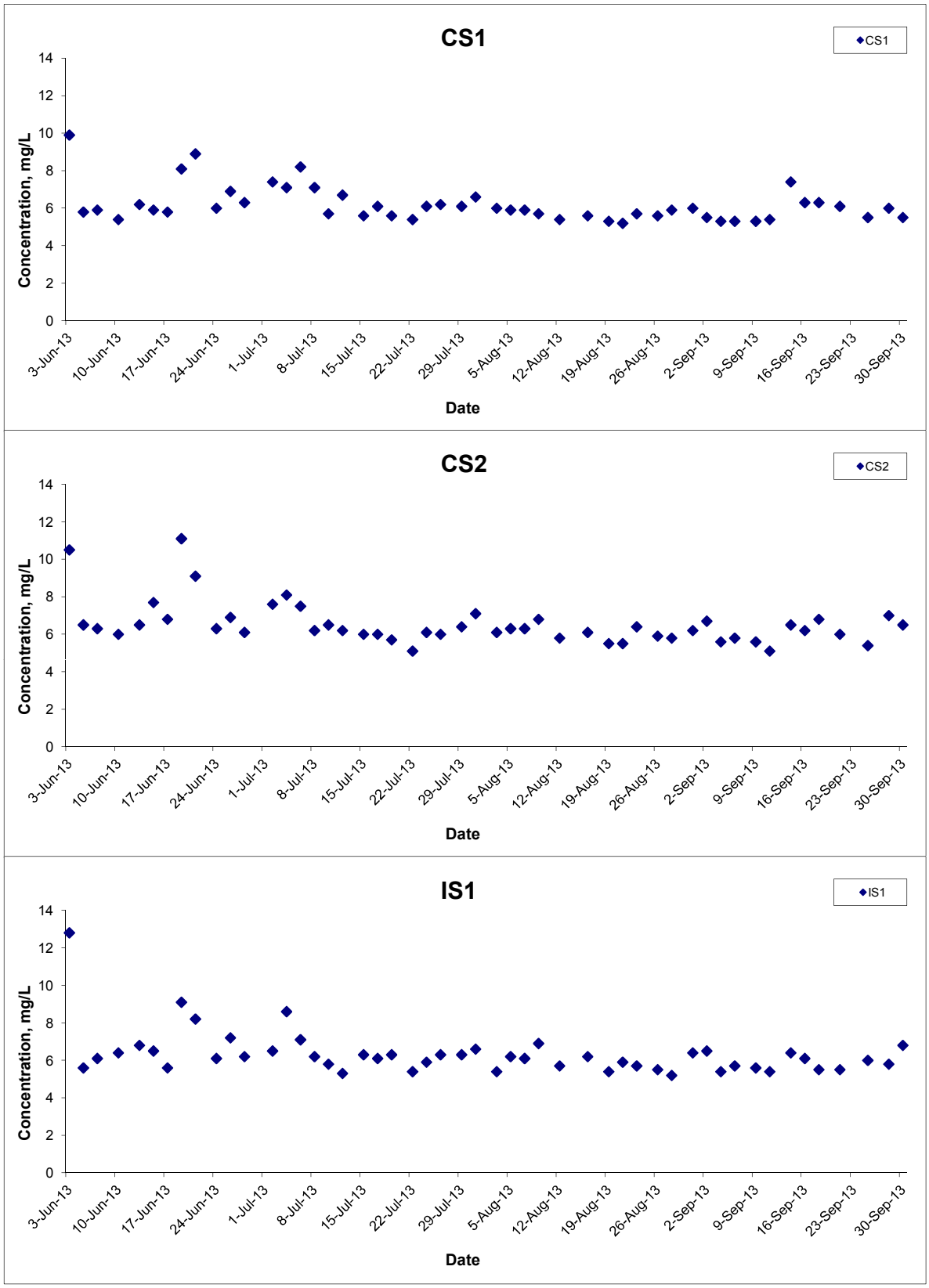
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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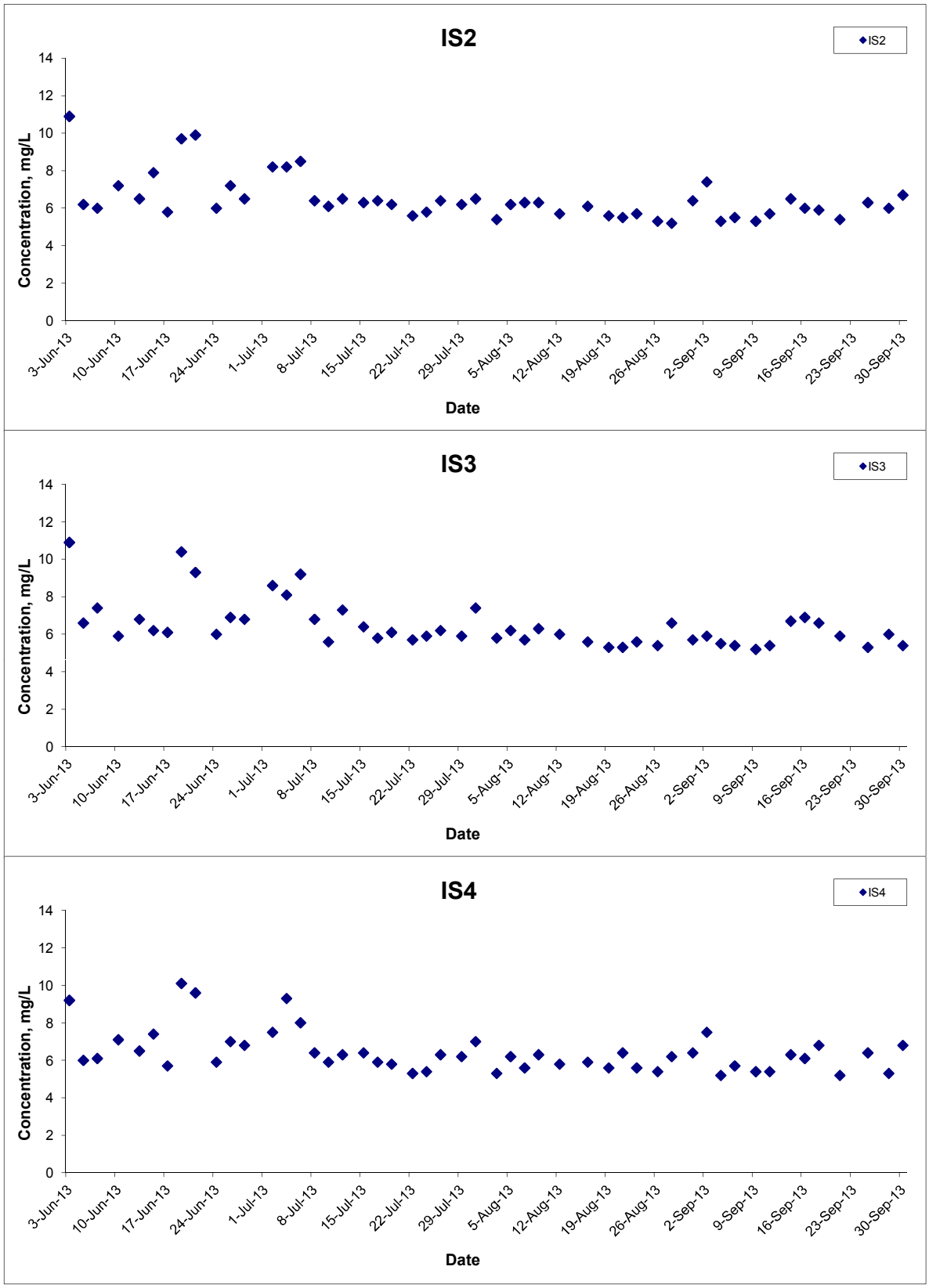
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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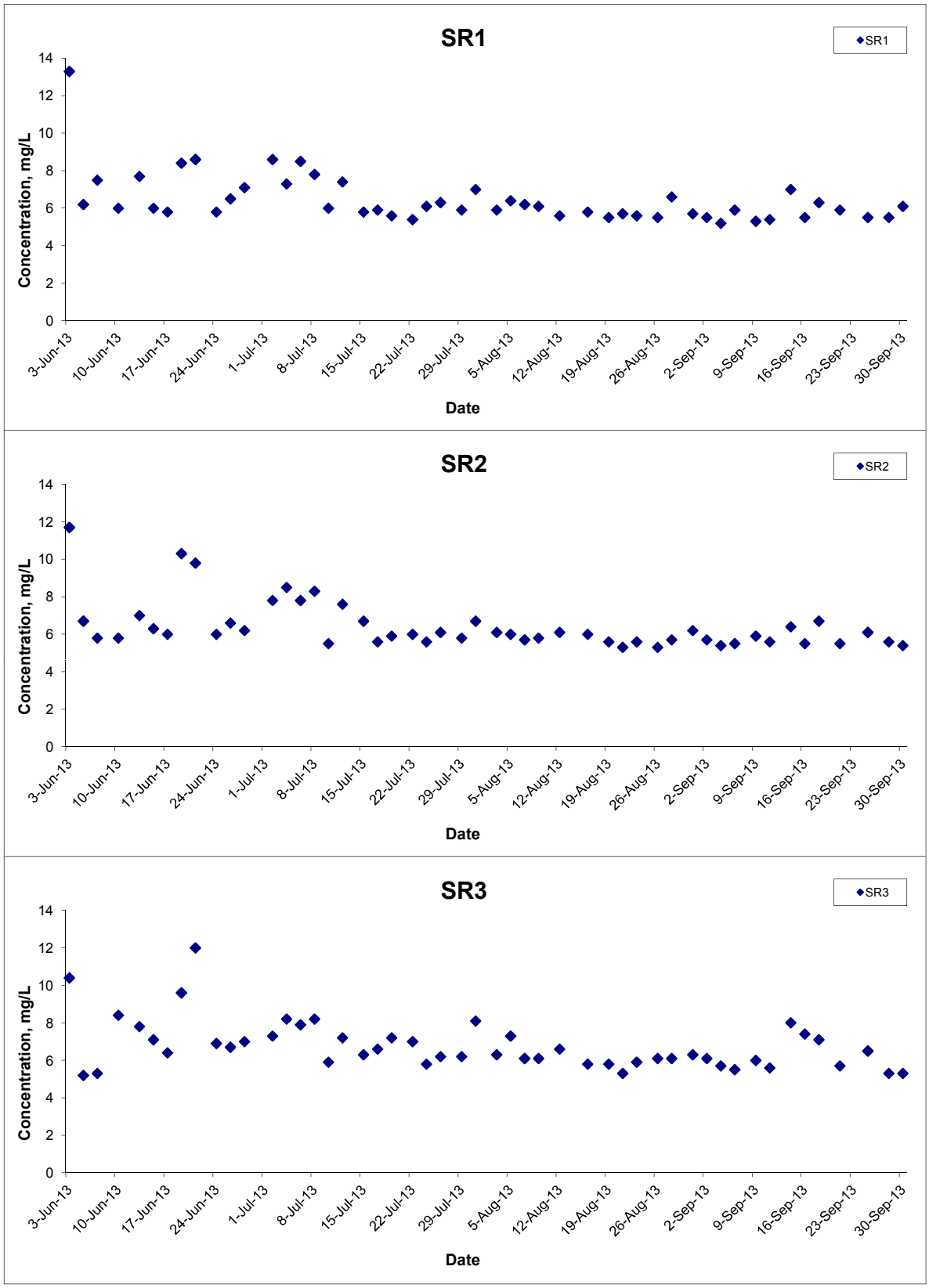
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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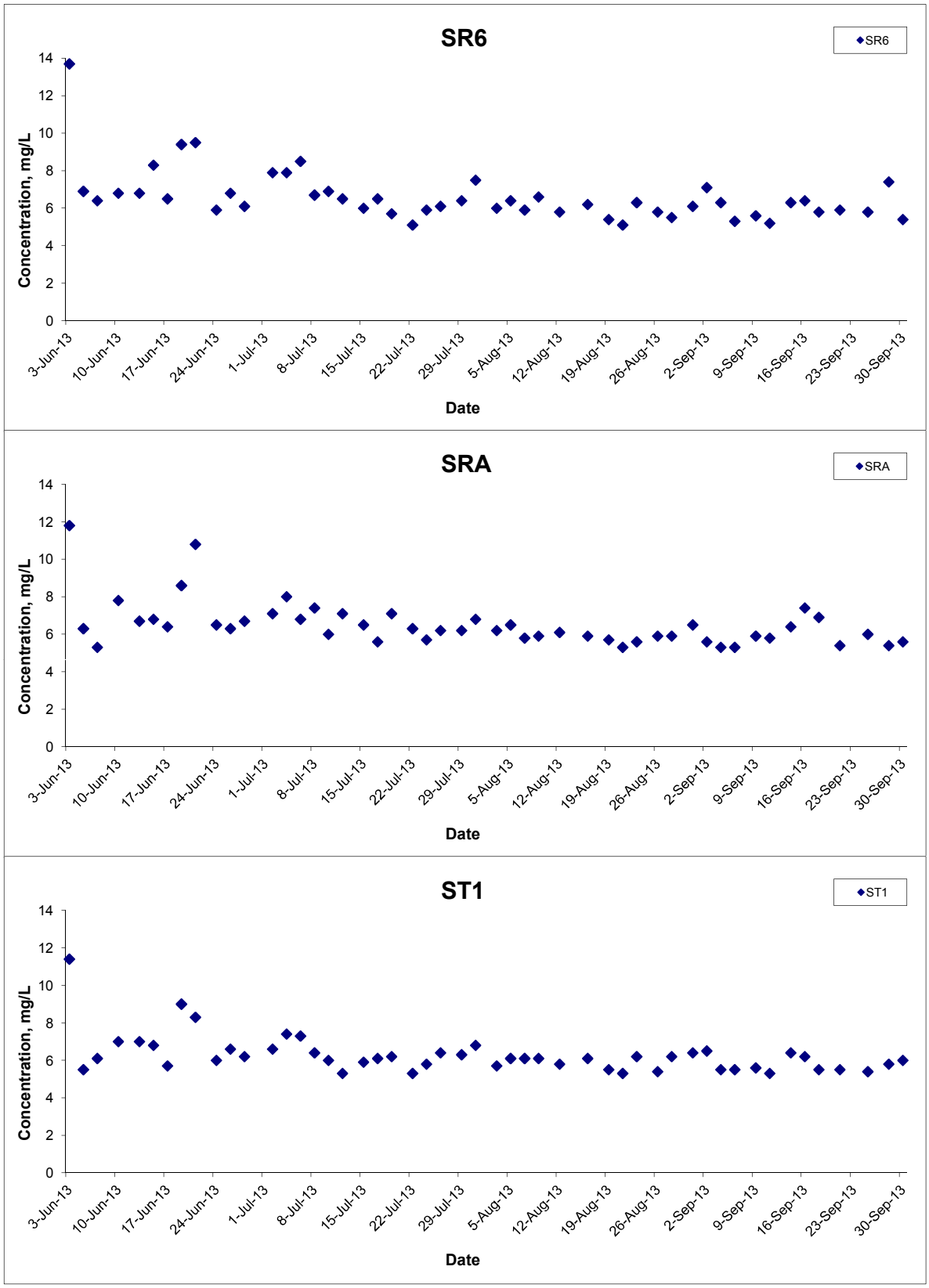

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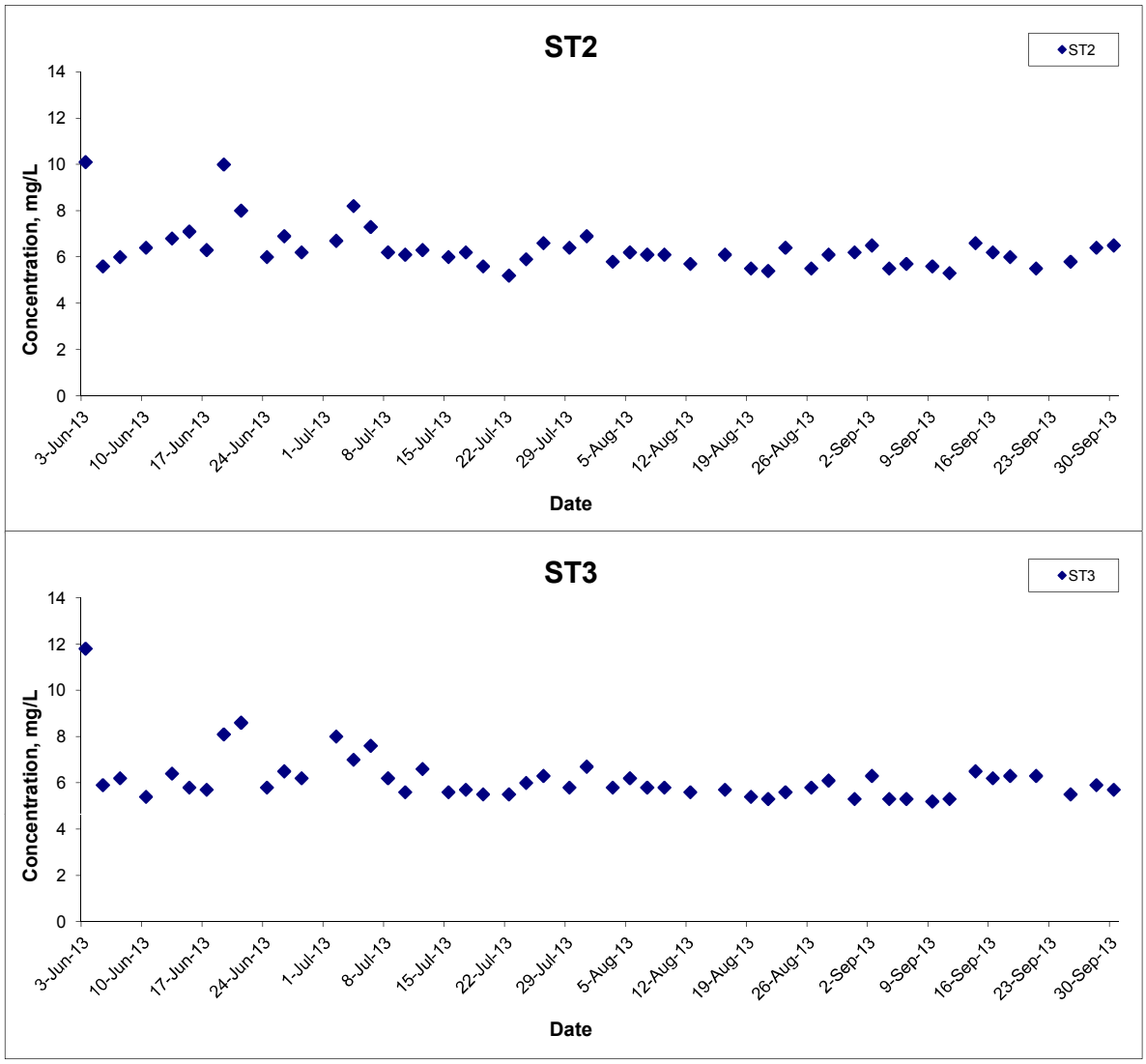
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



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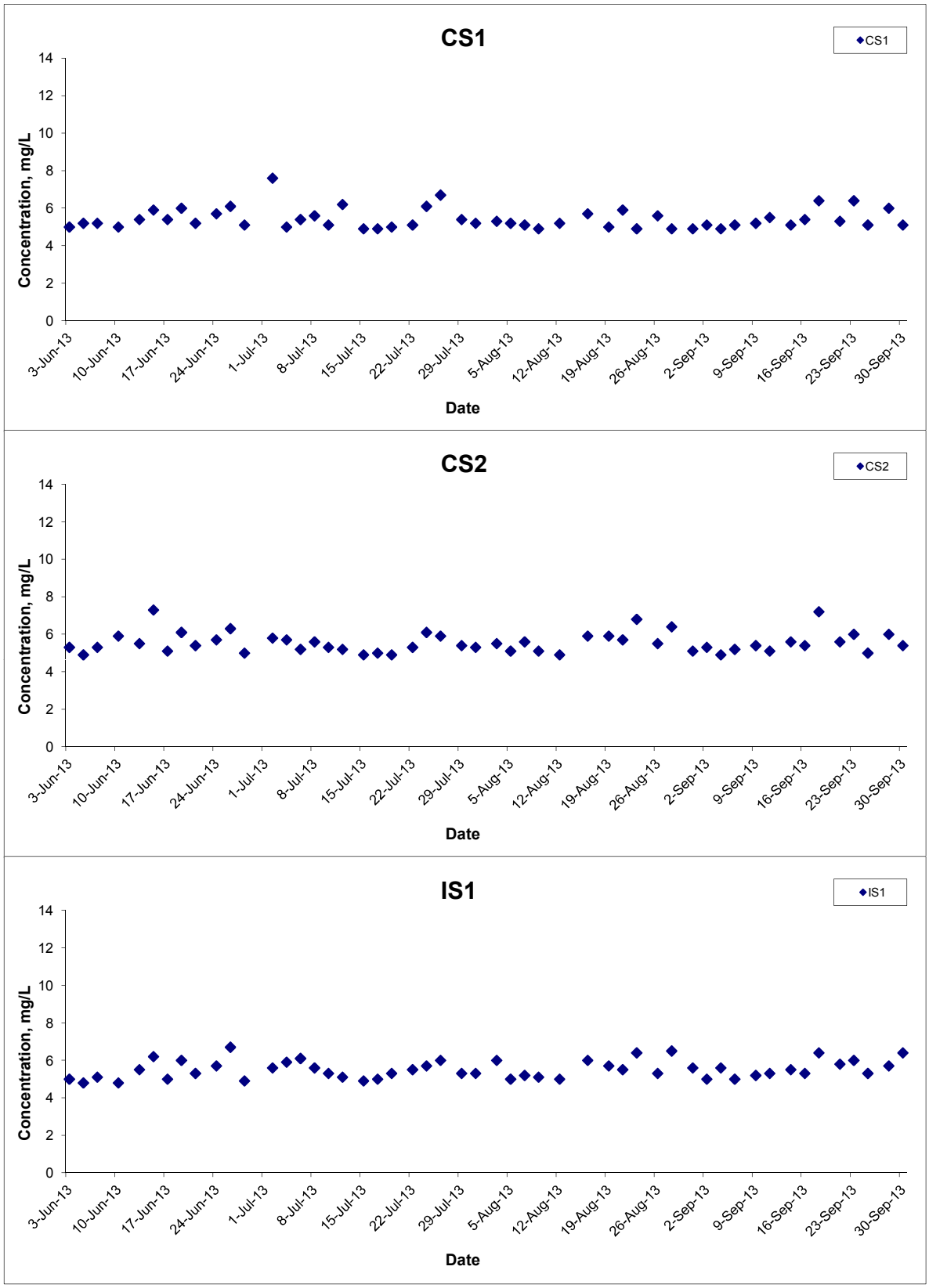
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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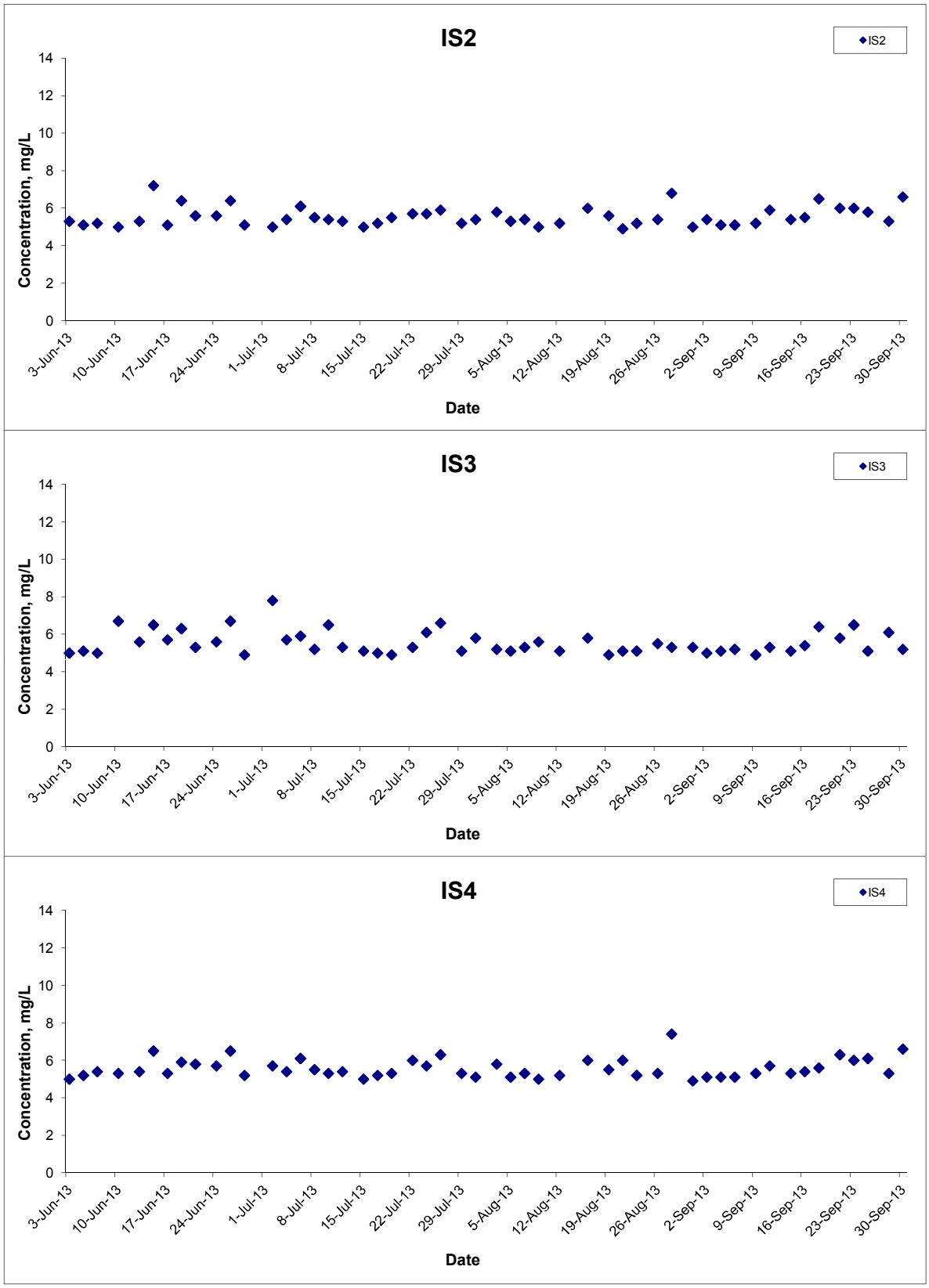
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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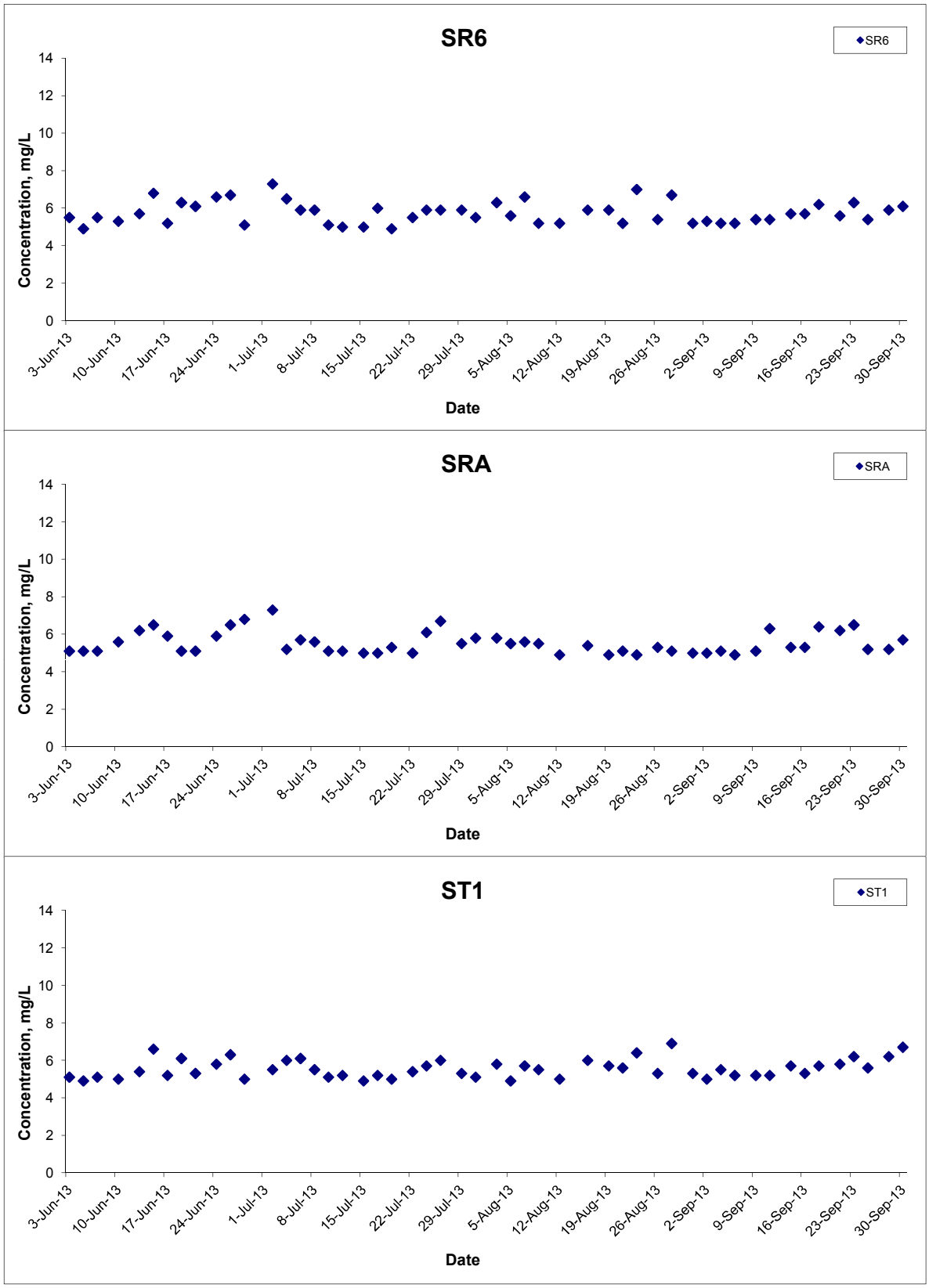
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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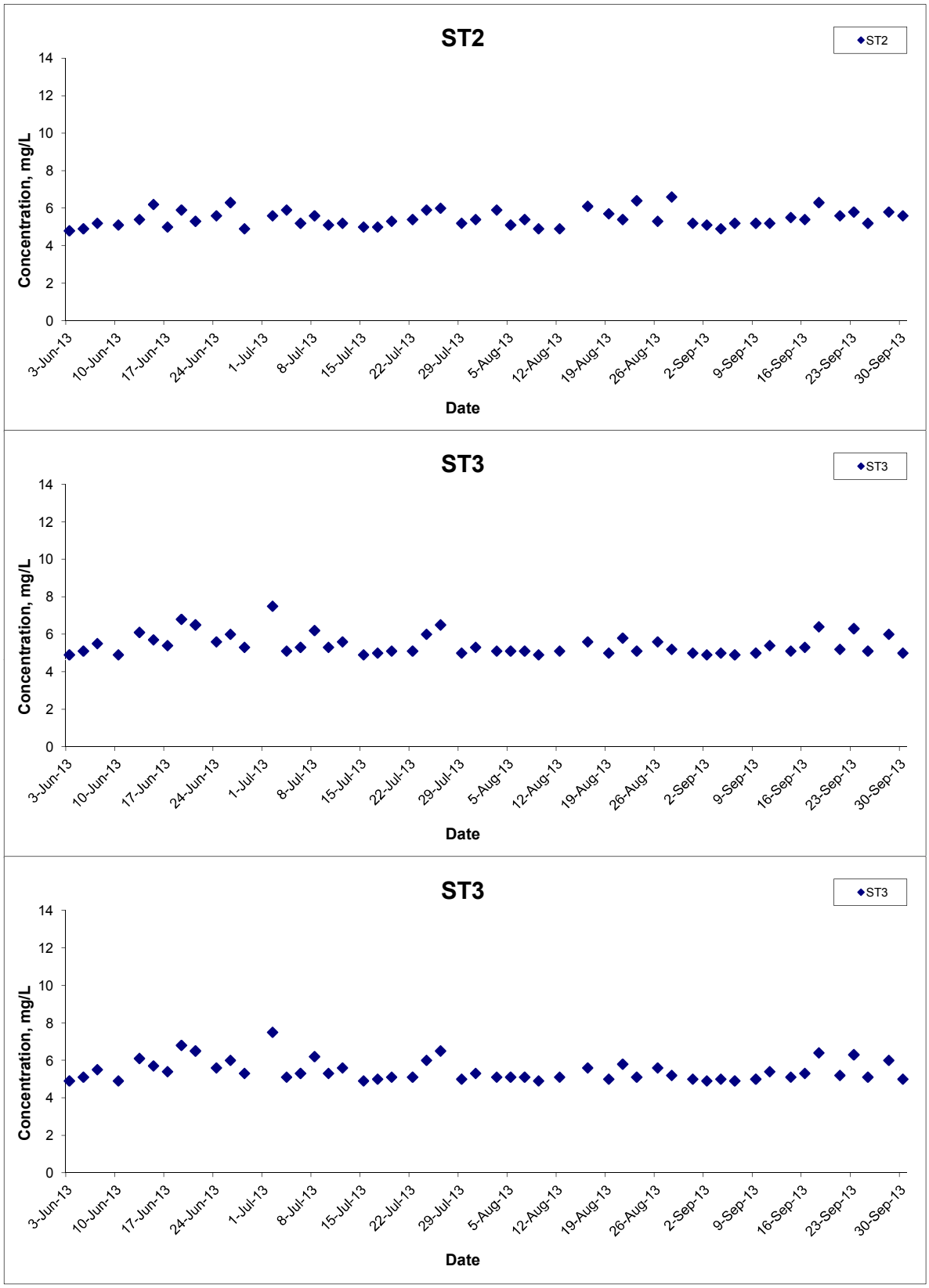
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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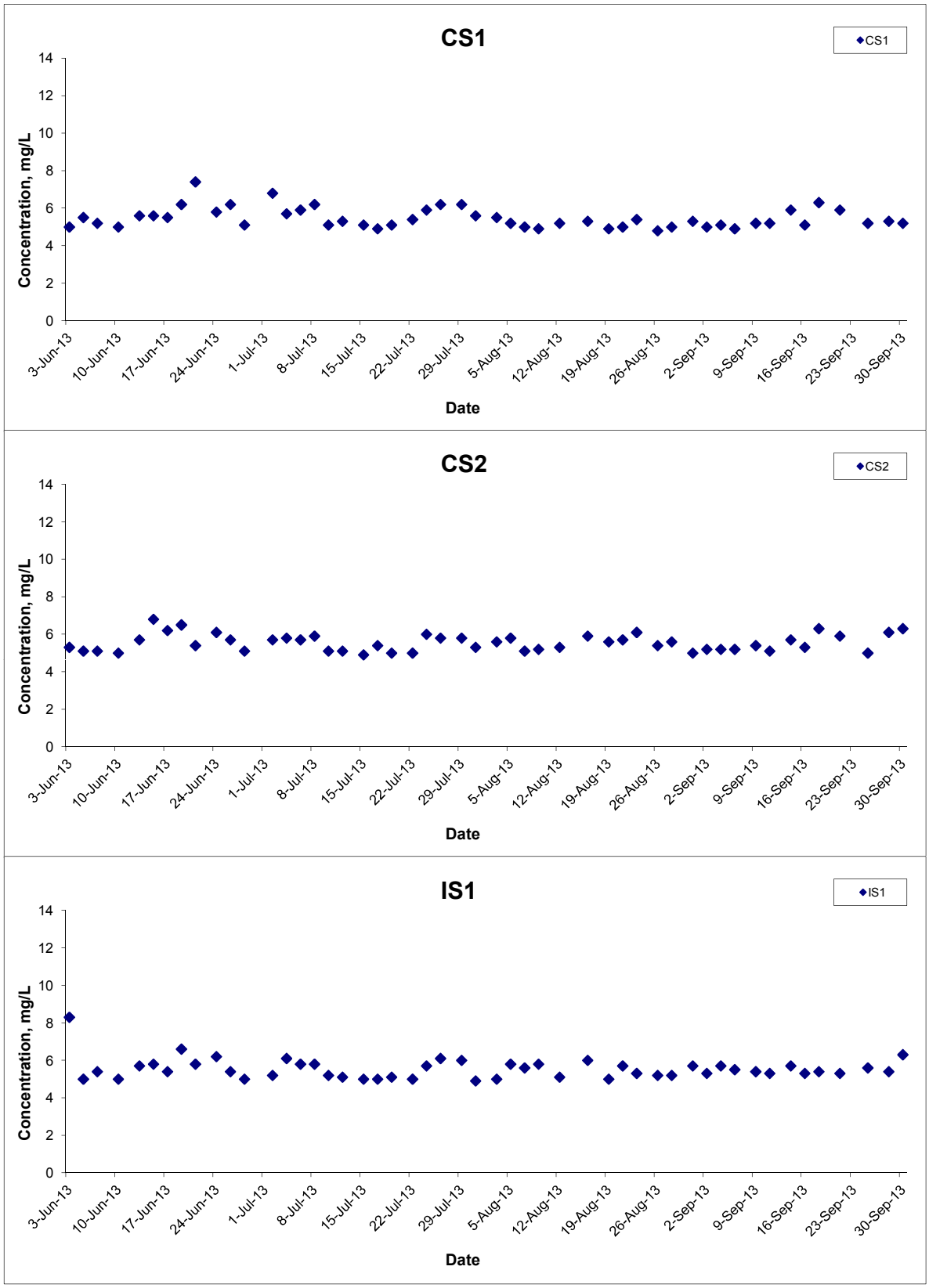
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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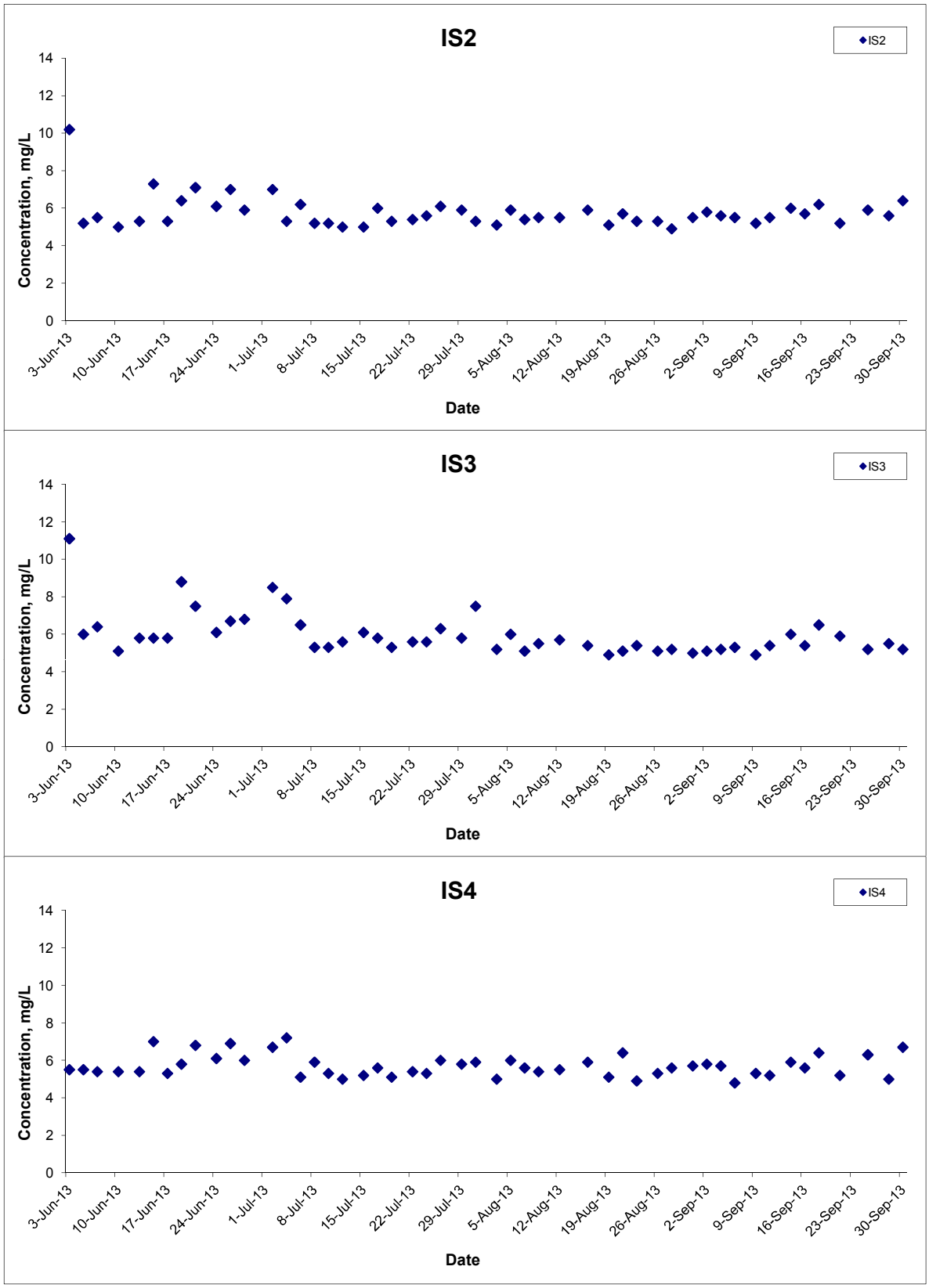
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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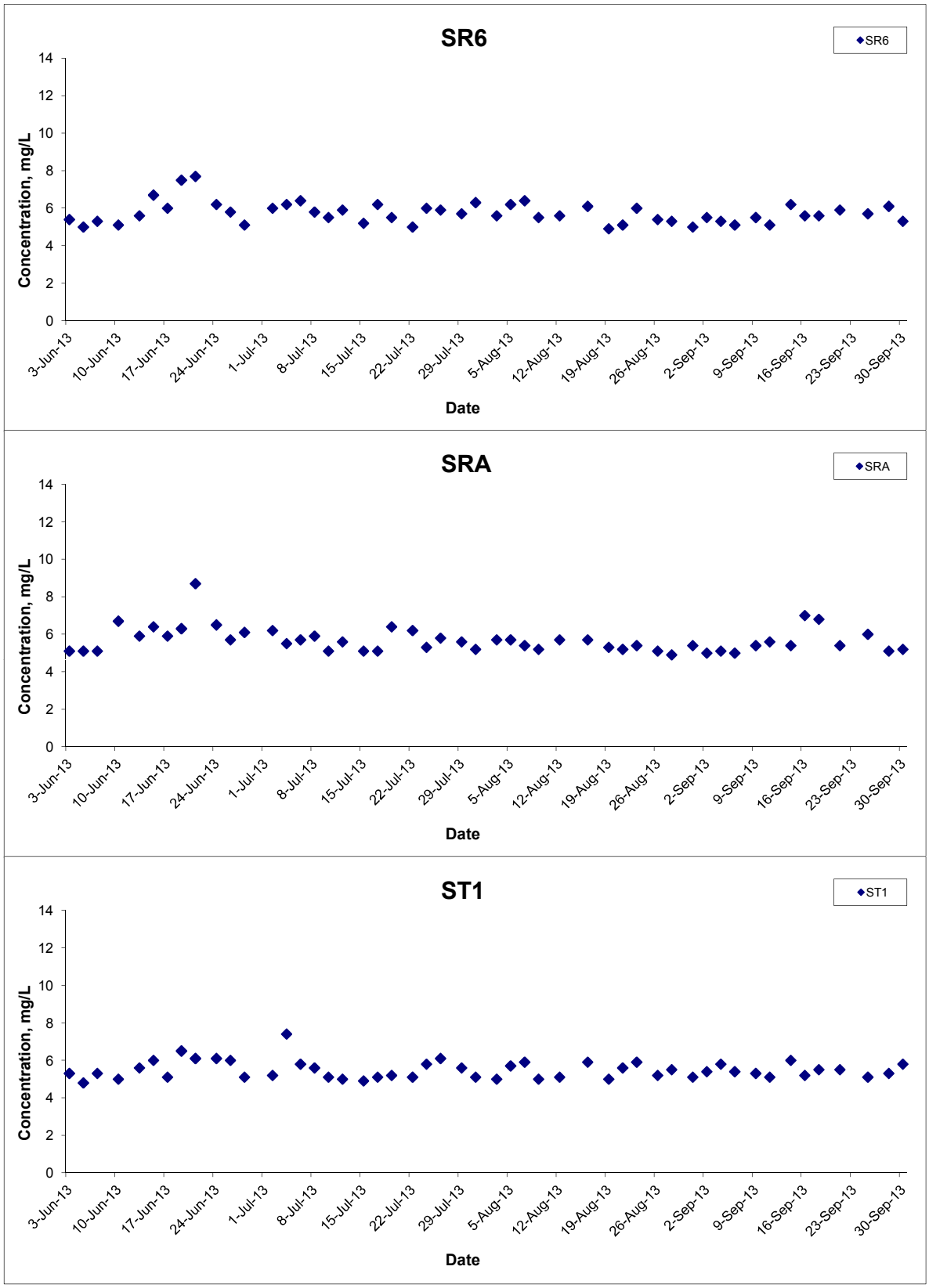
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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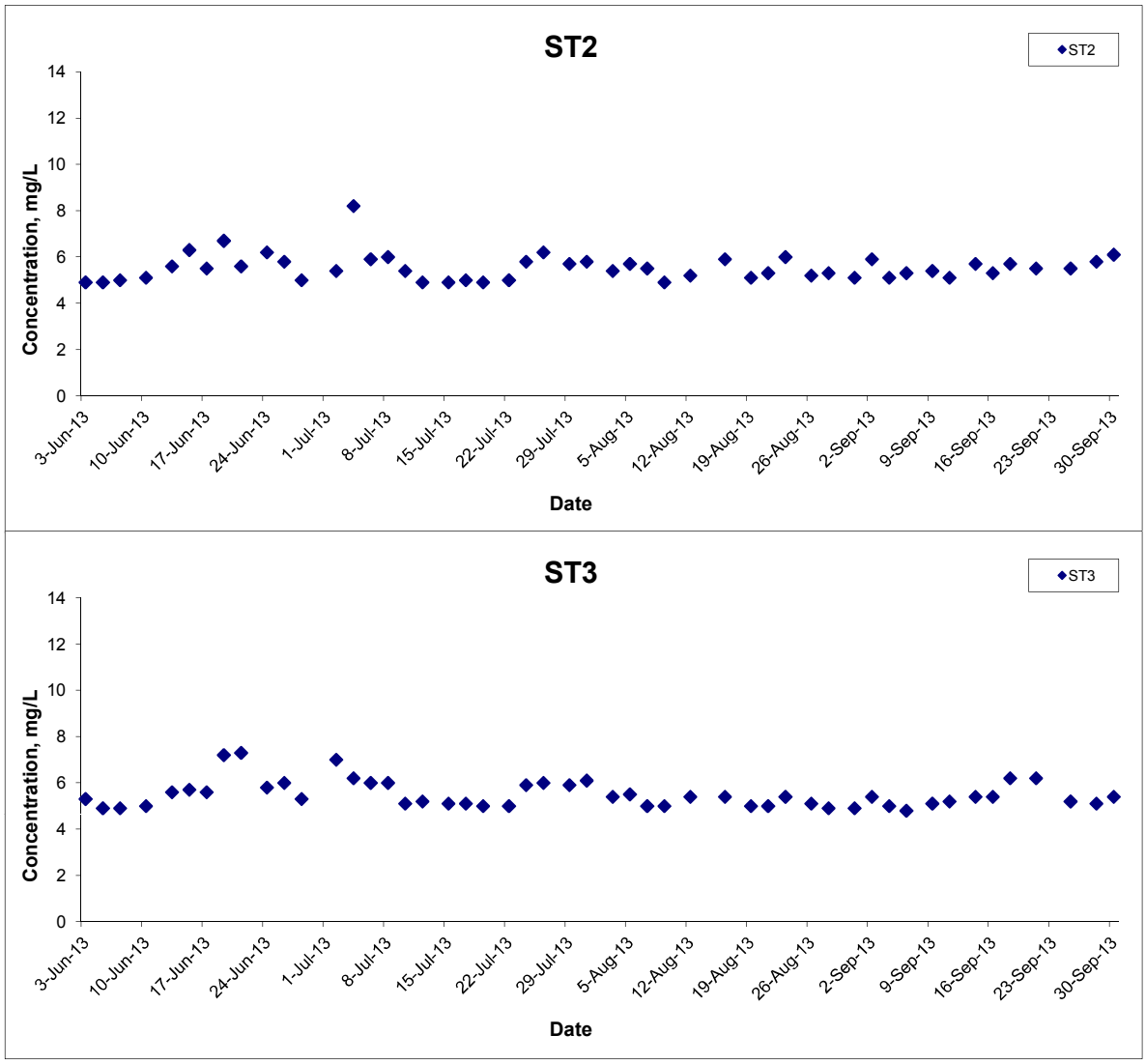
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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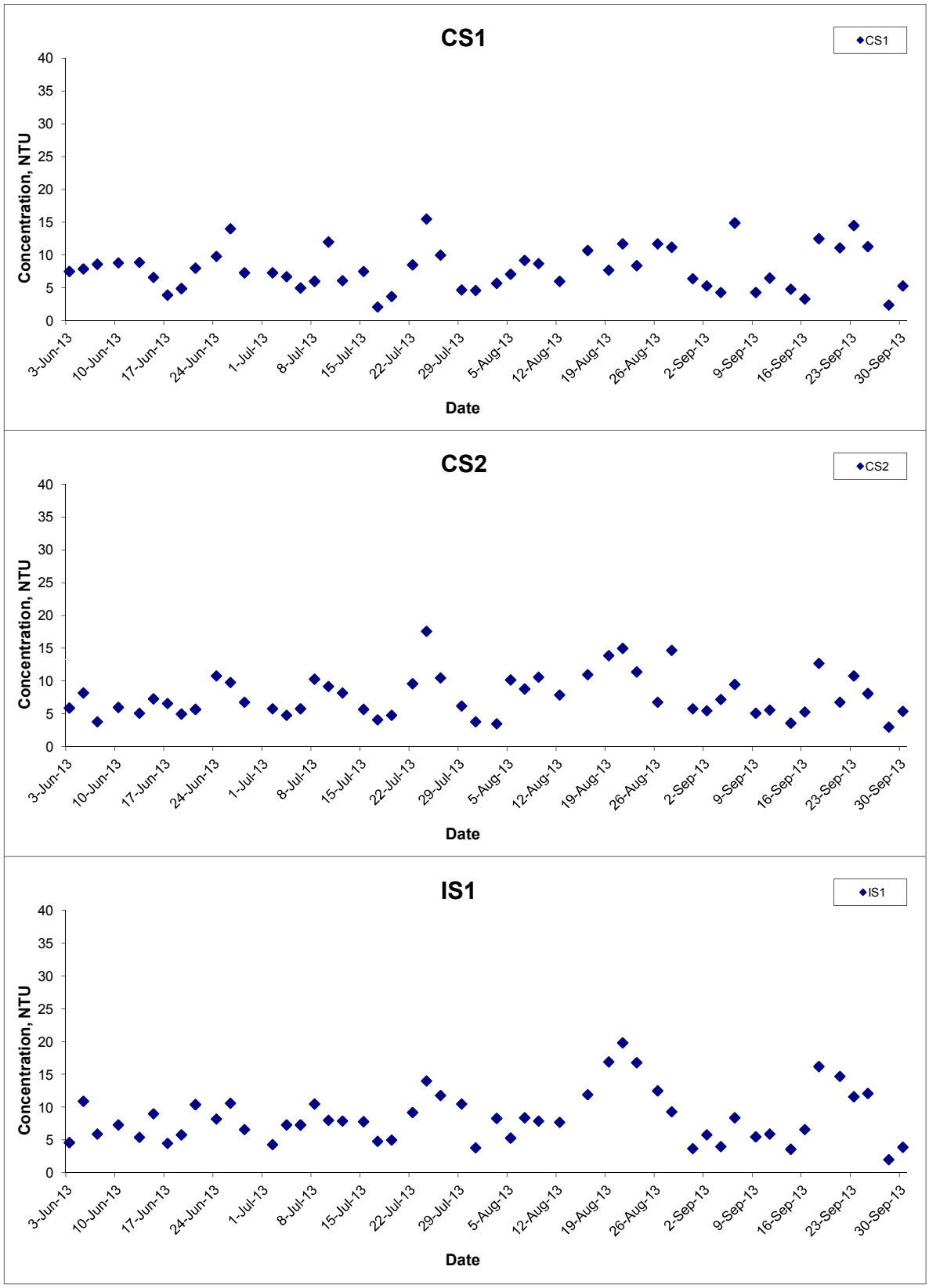
Turbidity (Depth-averaged) at Mid-Ebb Tide



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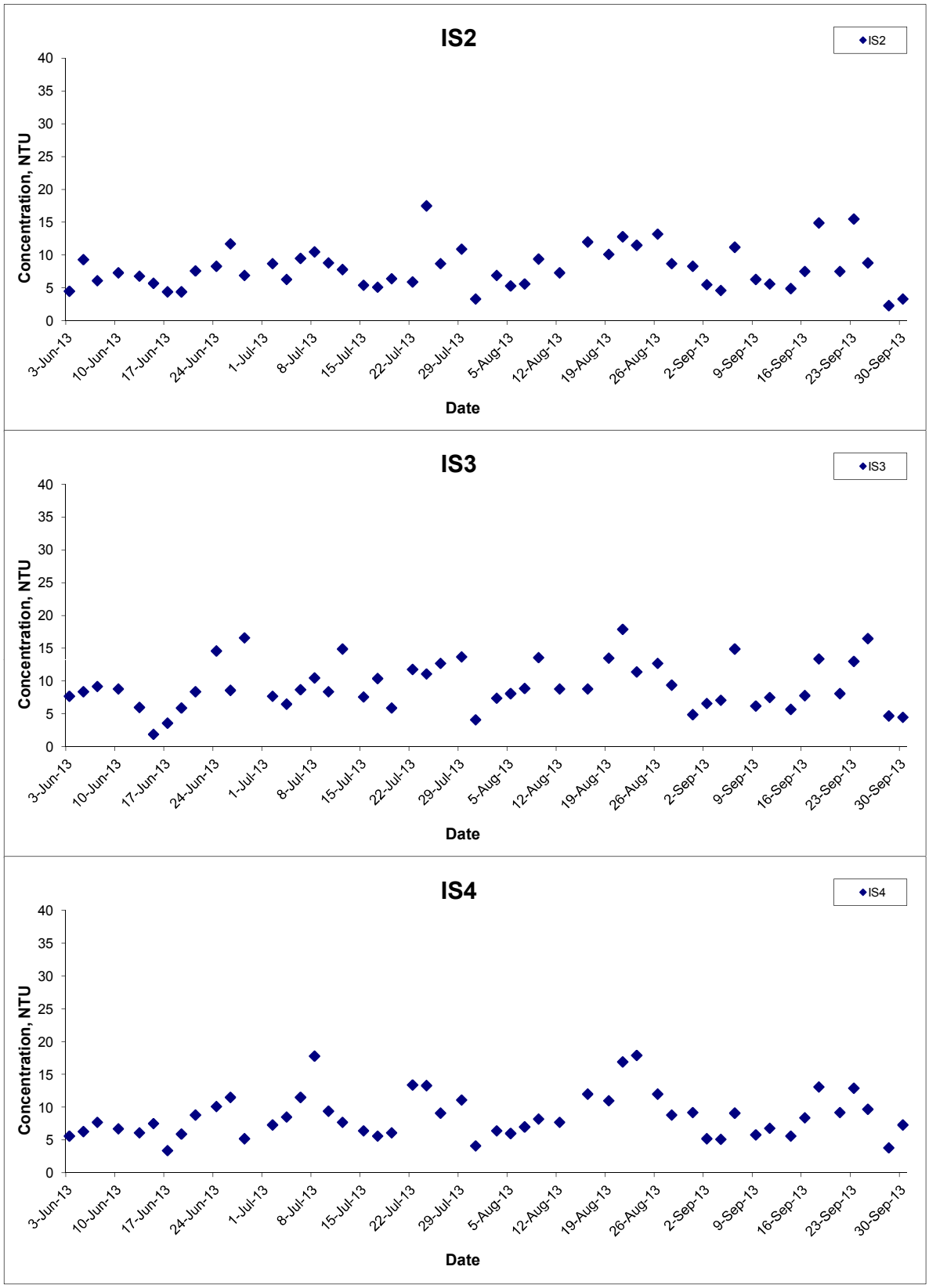
Turbidity (Depth-averaged) at Mid-Ebb Tide



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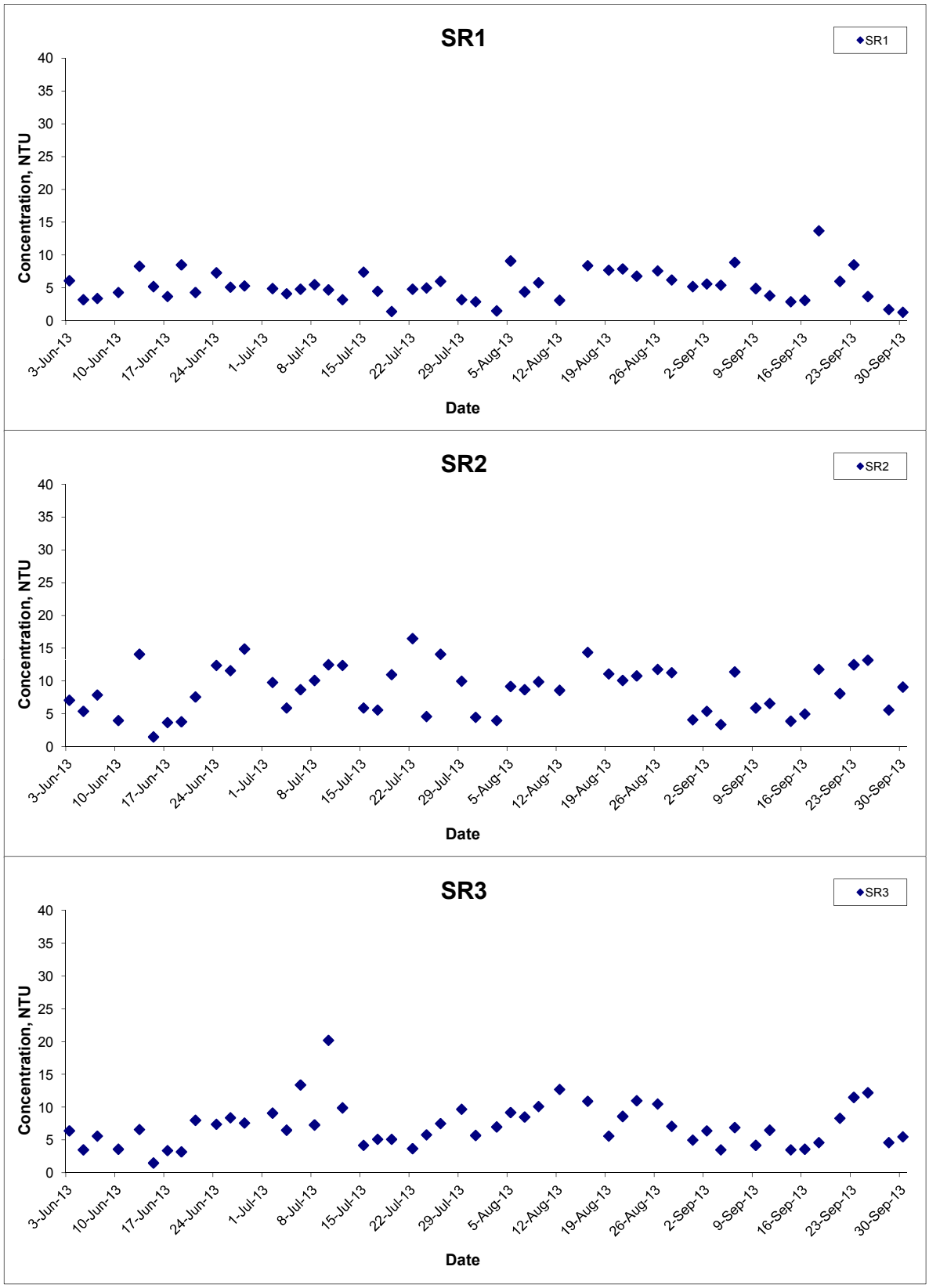
Turbidity (Depth-averaged) at Mid-Ebb Tide



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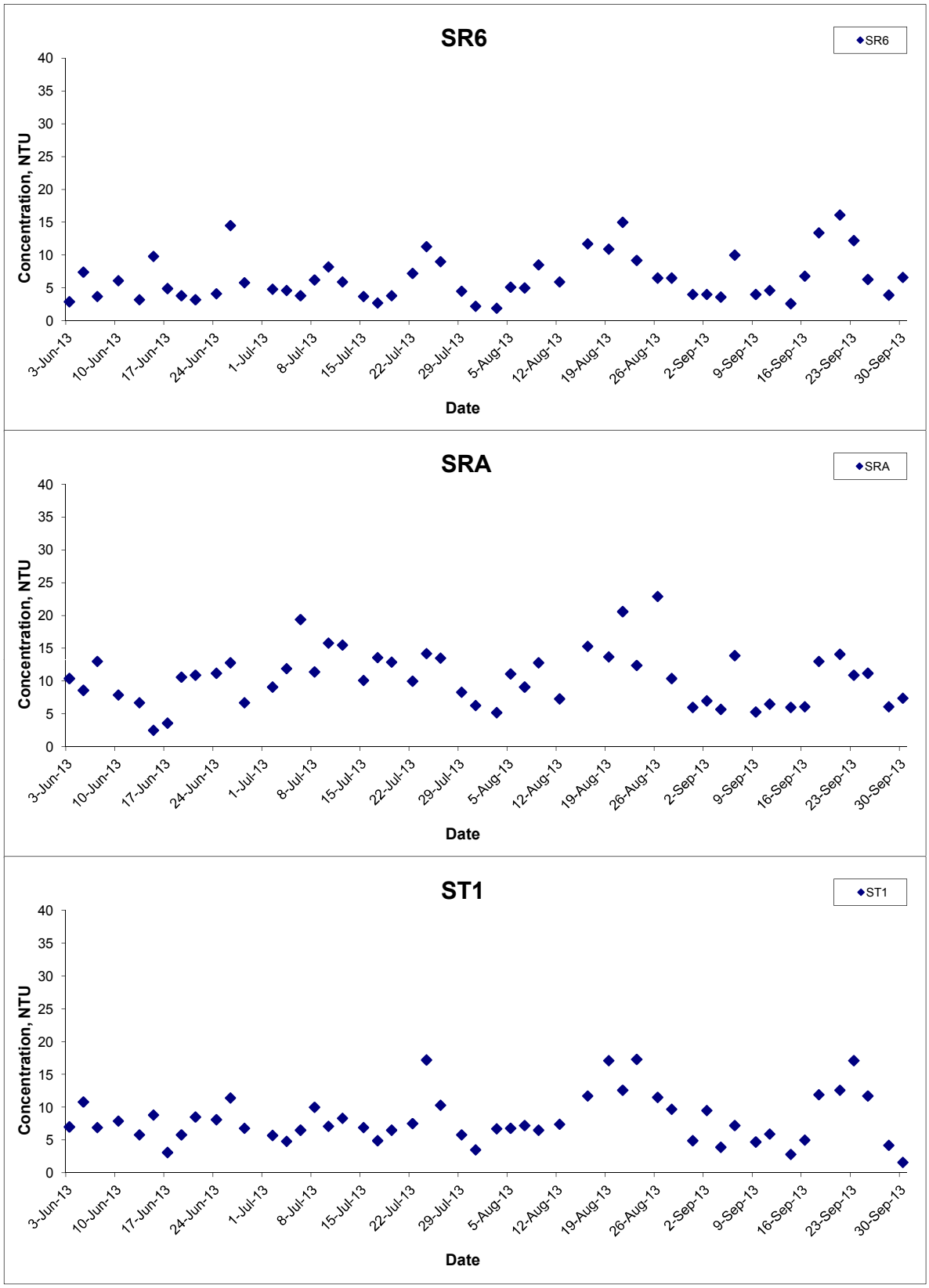
Turbidity (Depth-averaged) at Mid-Ebb Tide



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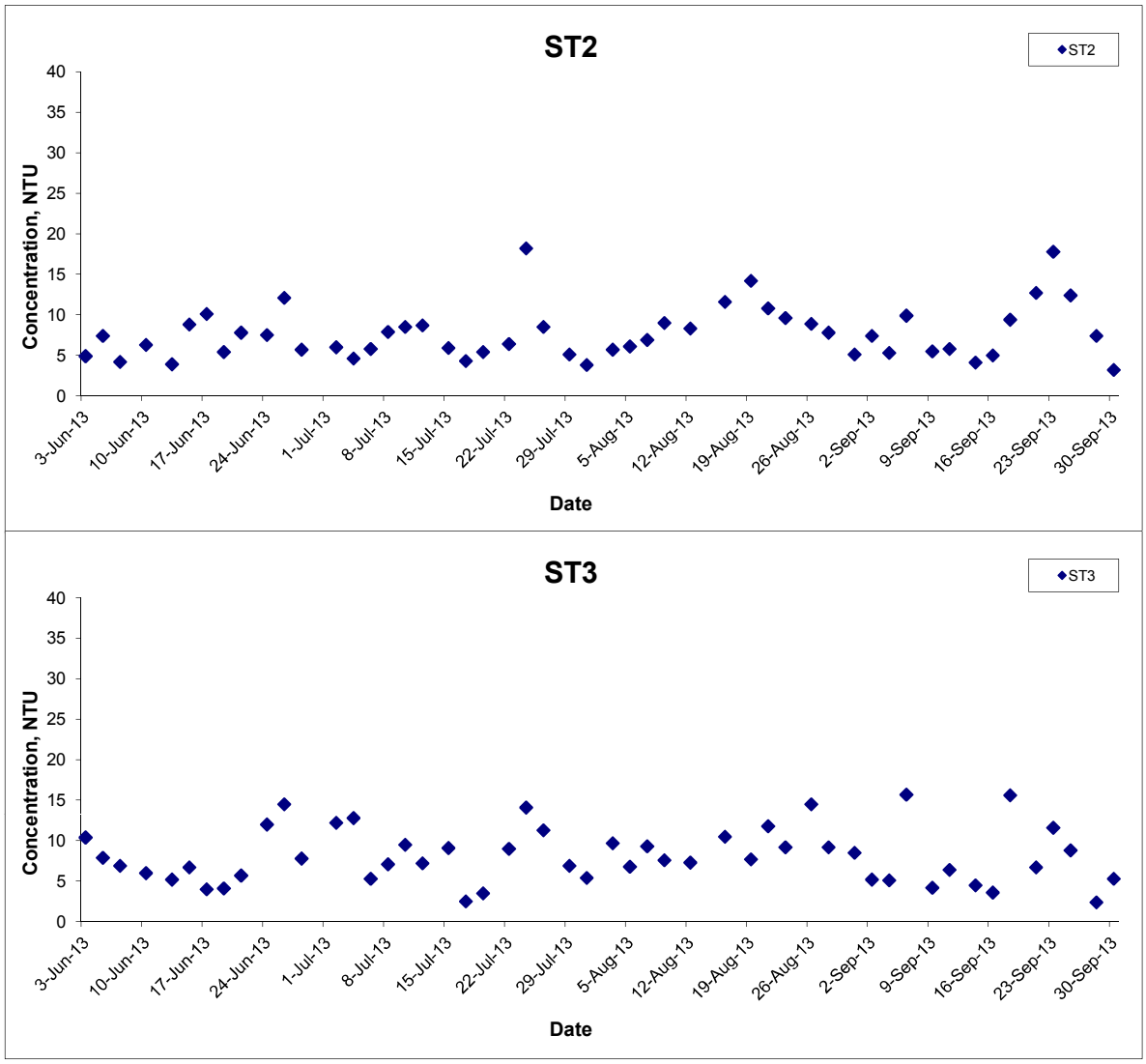
Turbidity (Depth-averaged) at Mid-Ebb Tide



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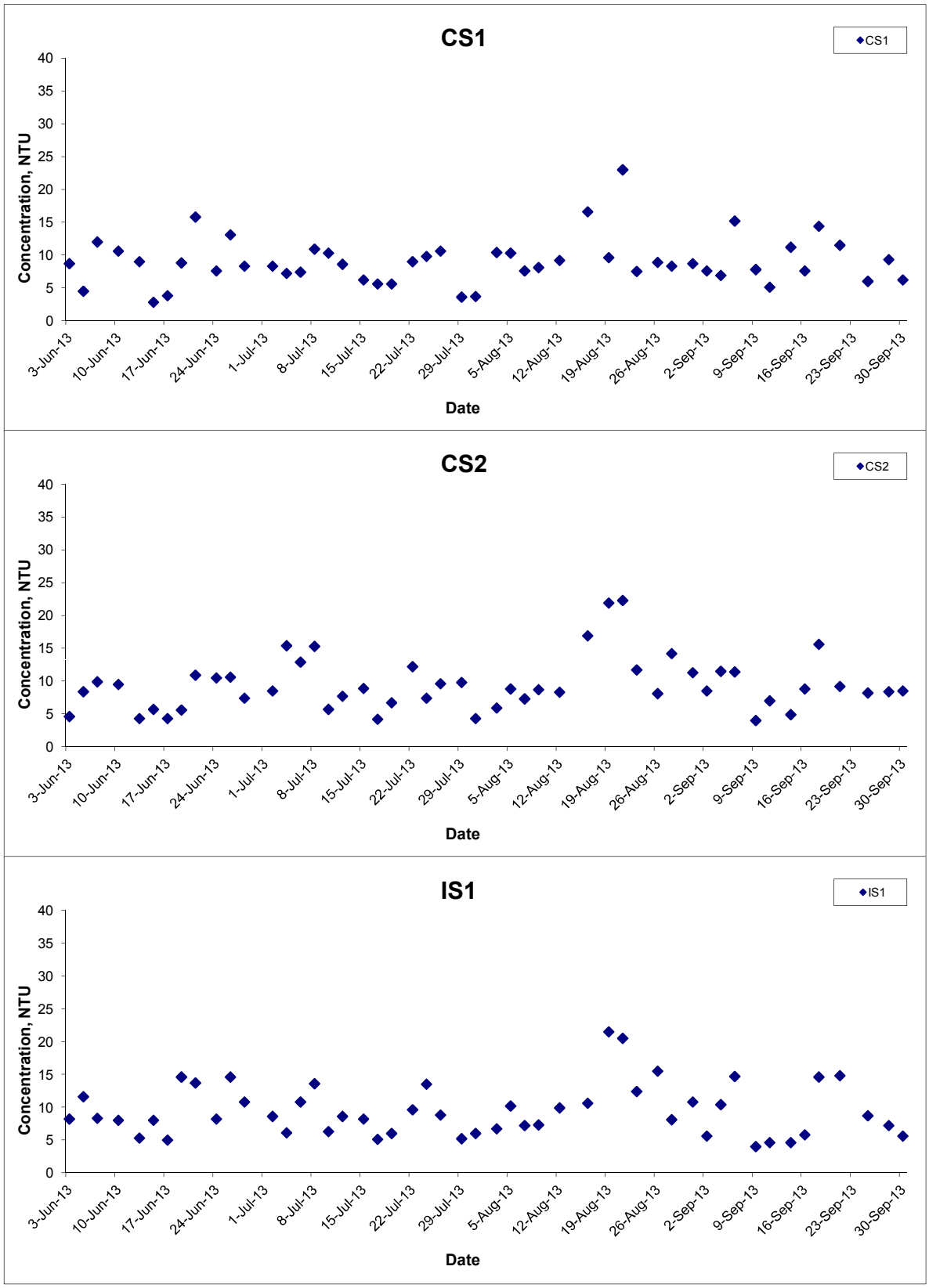
Turbidity (Depth-averaged) at Mid-Flood Tide



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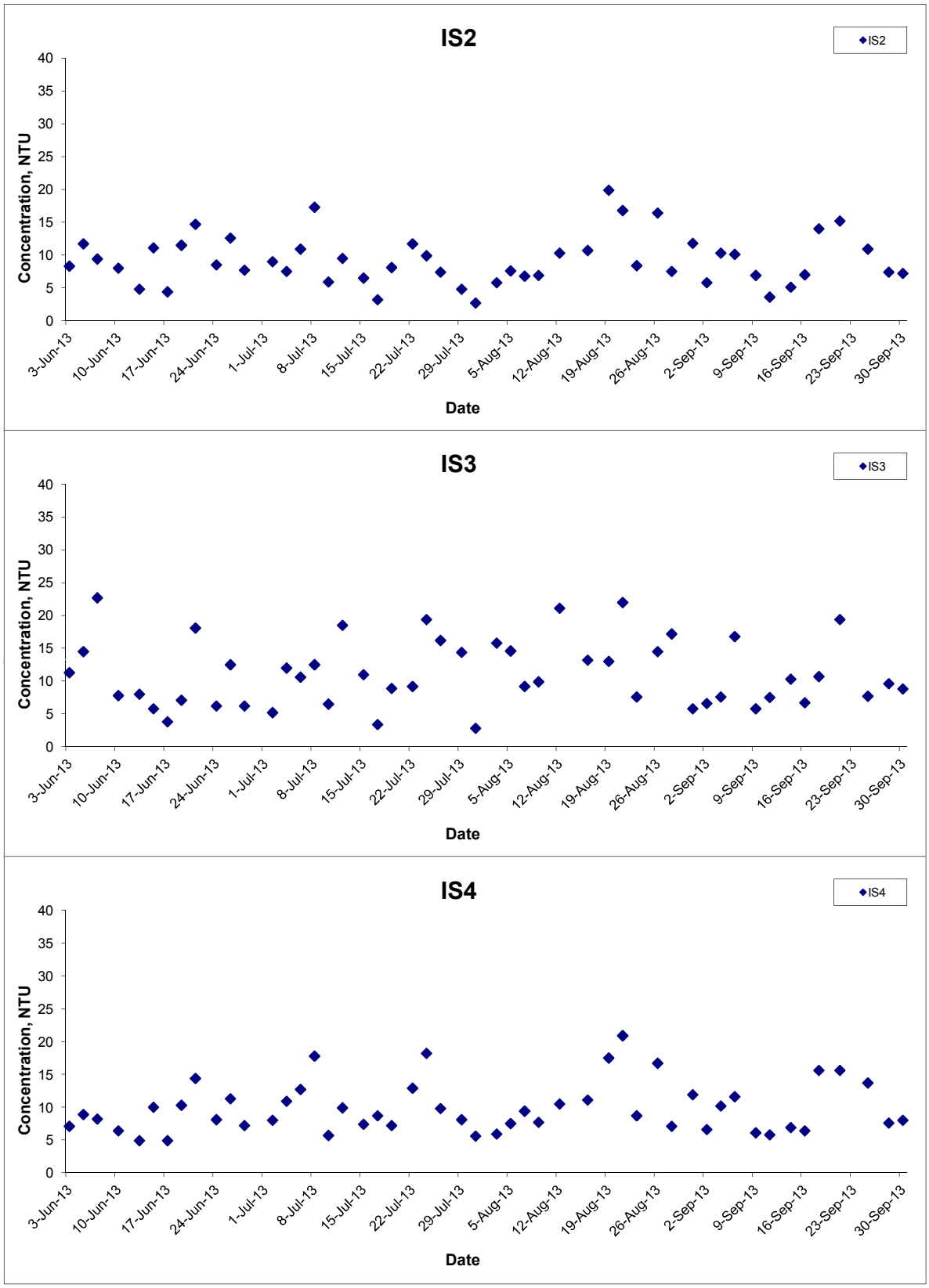
Turbidity (Depth-averaged) at Mid-Flood Tide



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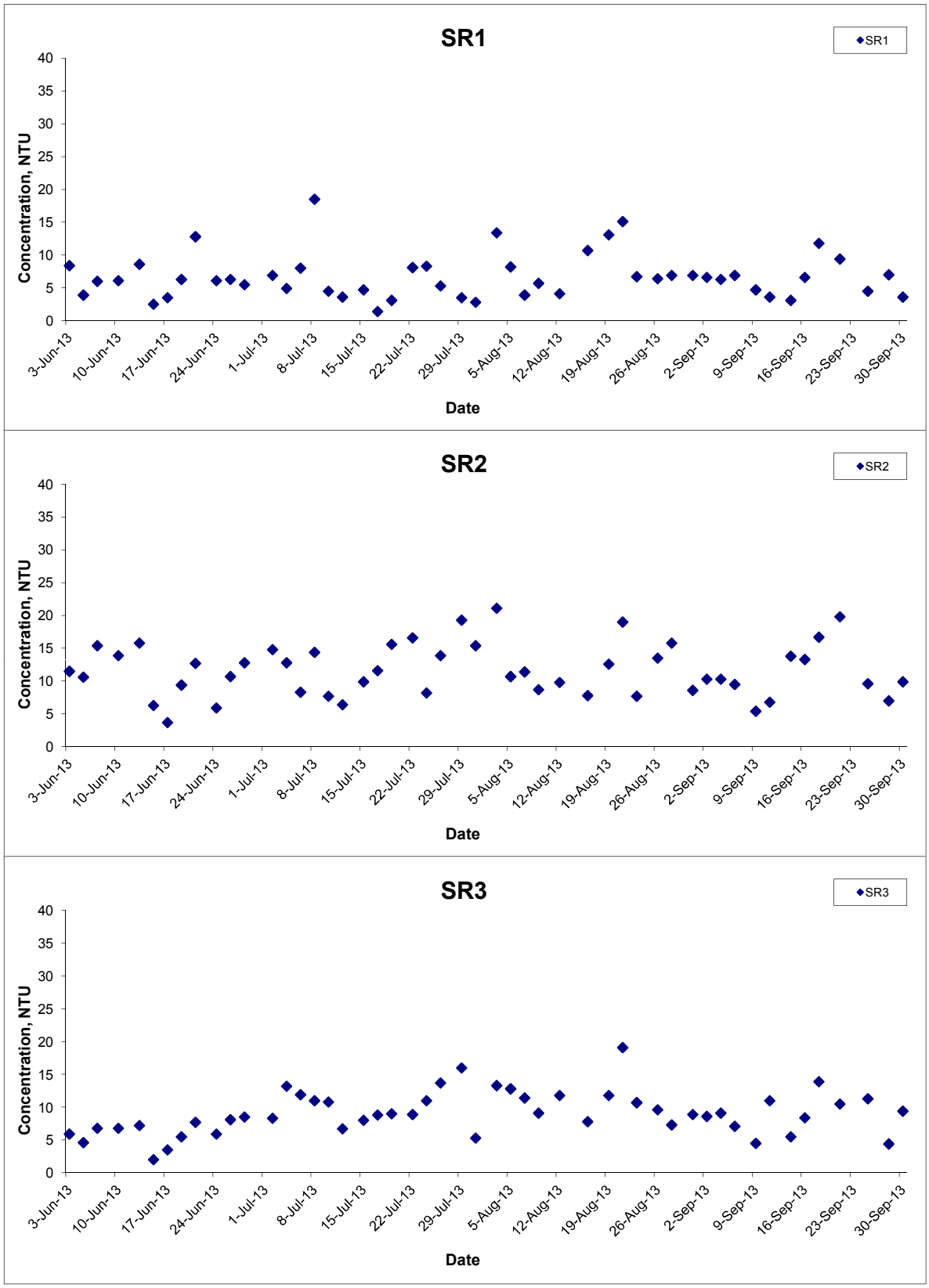

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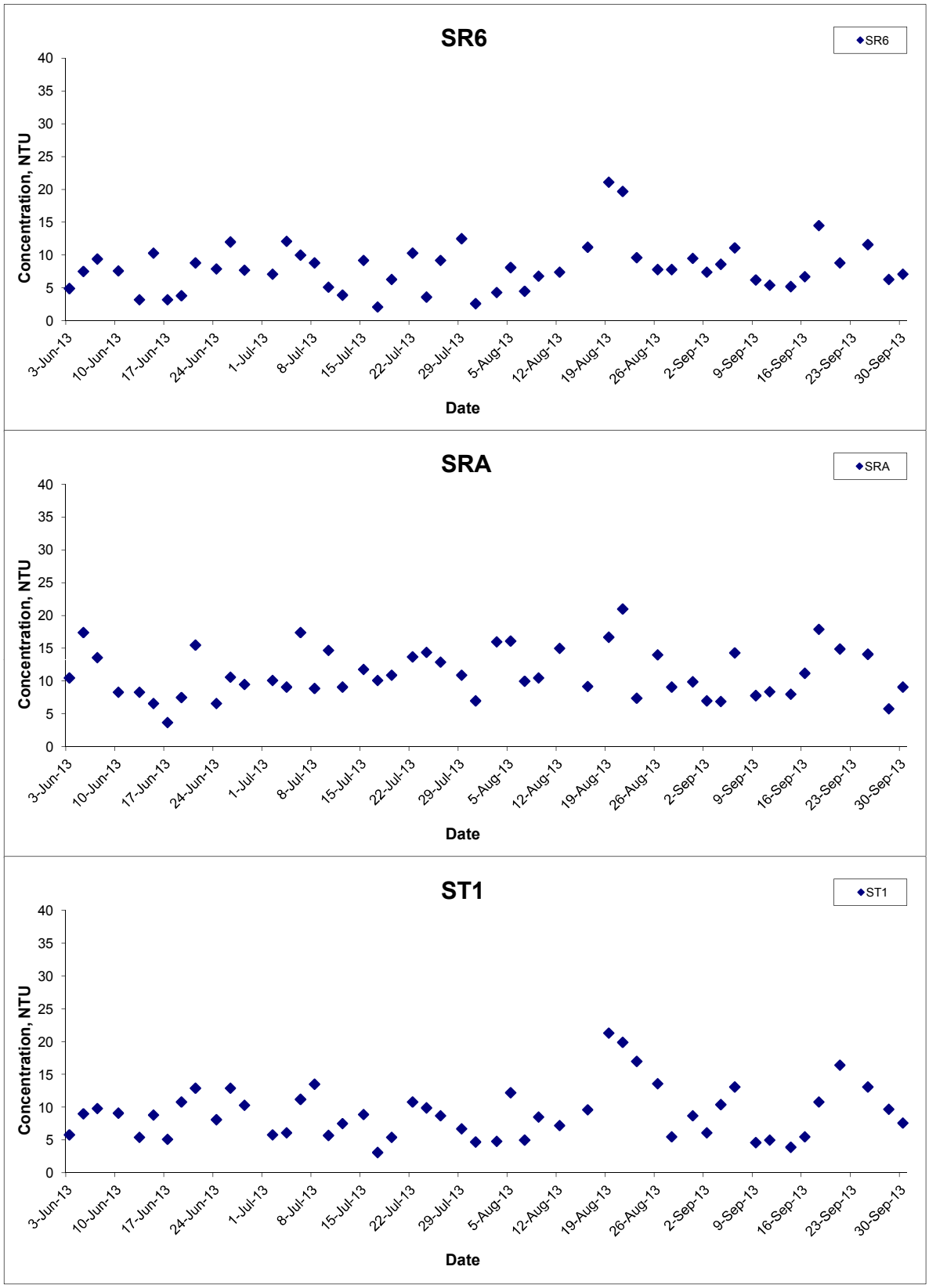
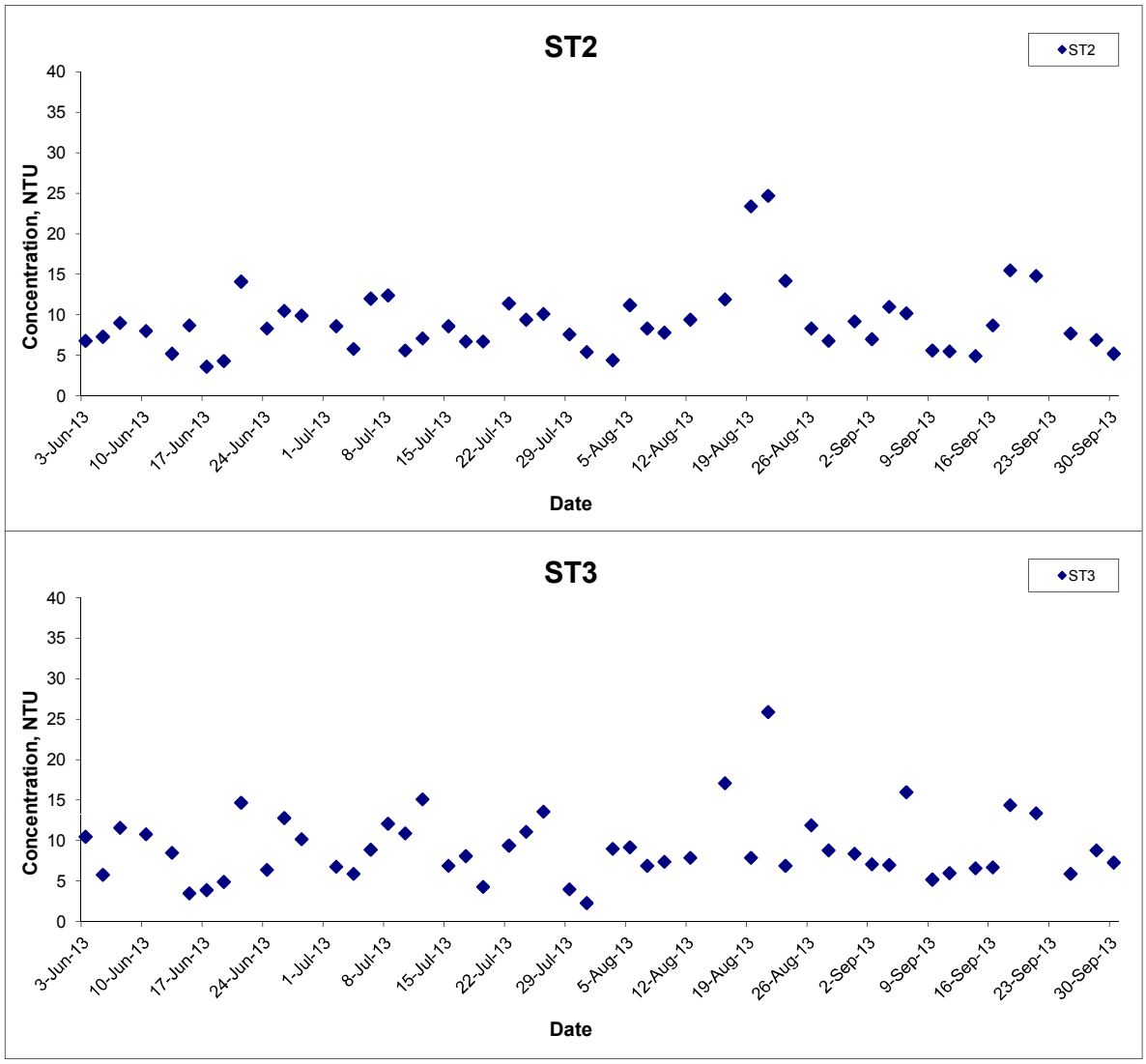
		Date: Sep 13	Appendix: H	

Turbidity (Depth-averaged) at Mid-Flood Tide



Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA12014	CINOTECH
		Date: Sep 13	Appendix: H	

Turbidity (Depth-averaged) at Mid-Flood Tide



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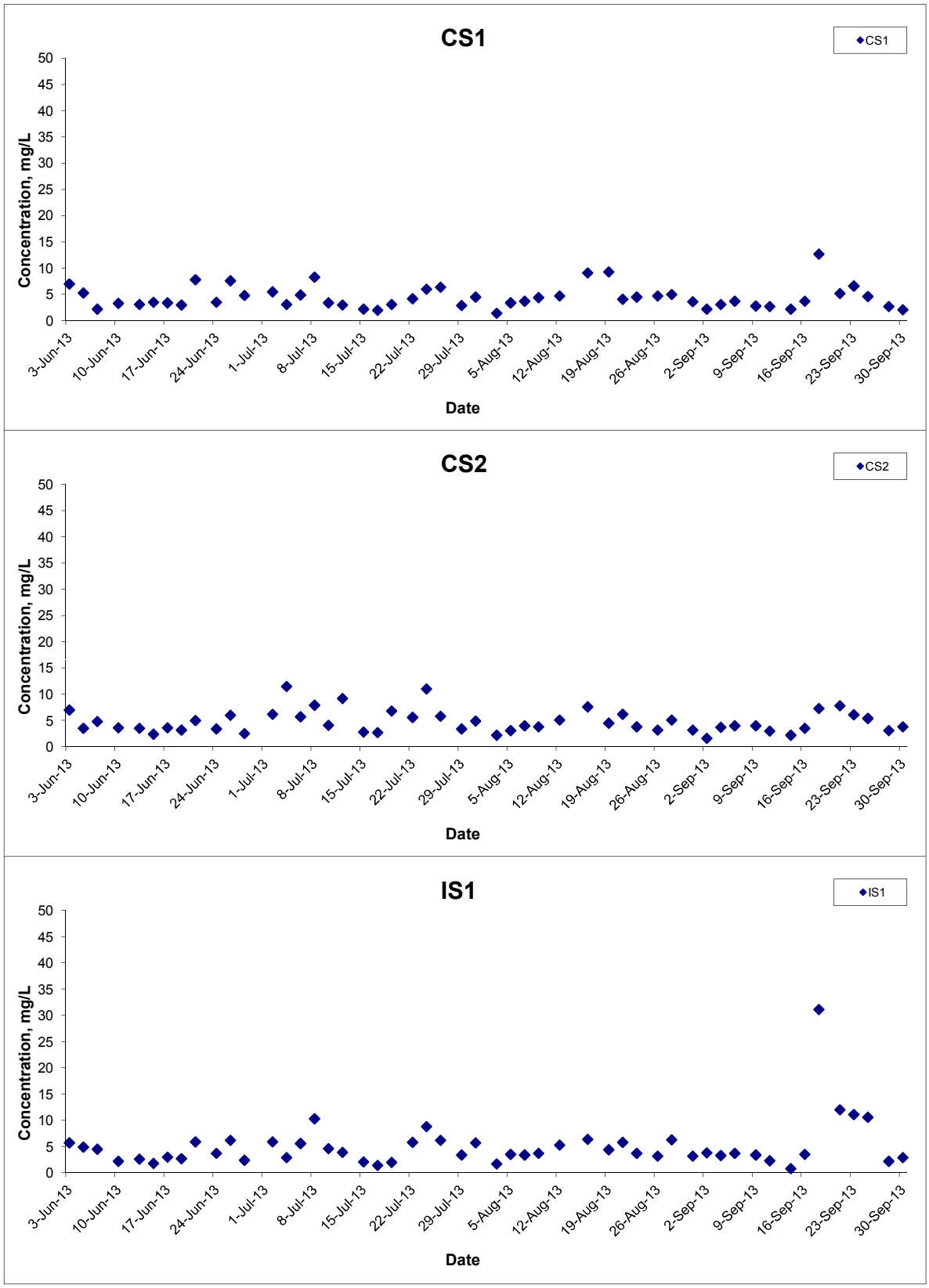
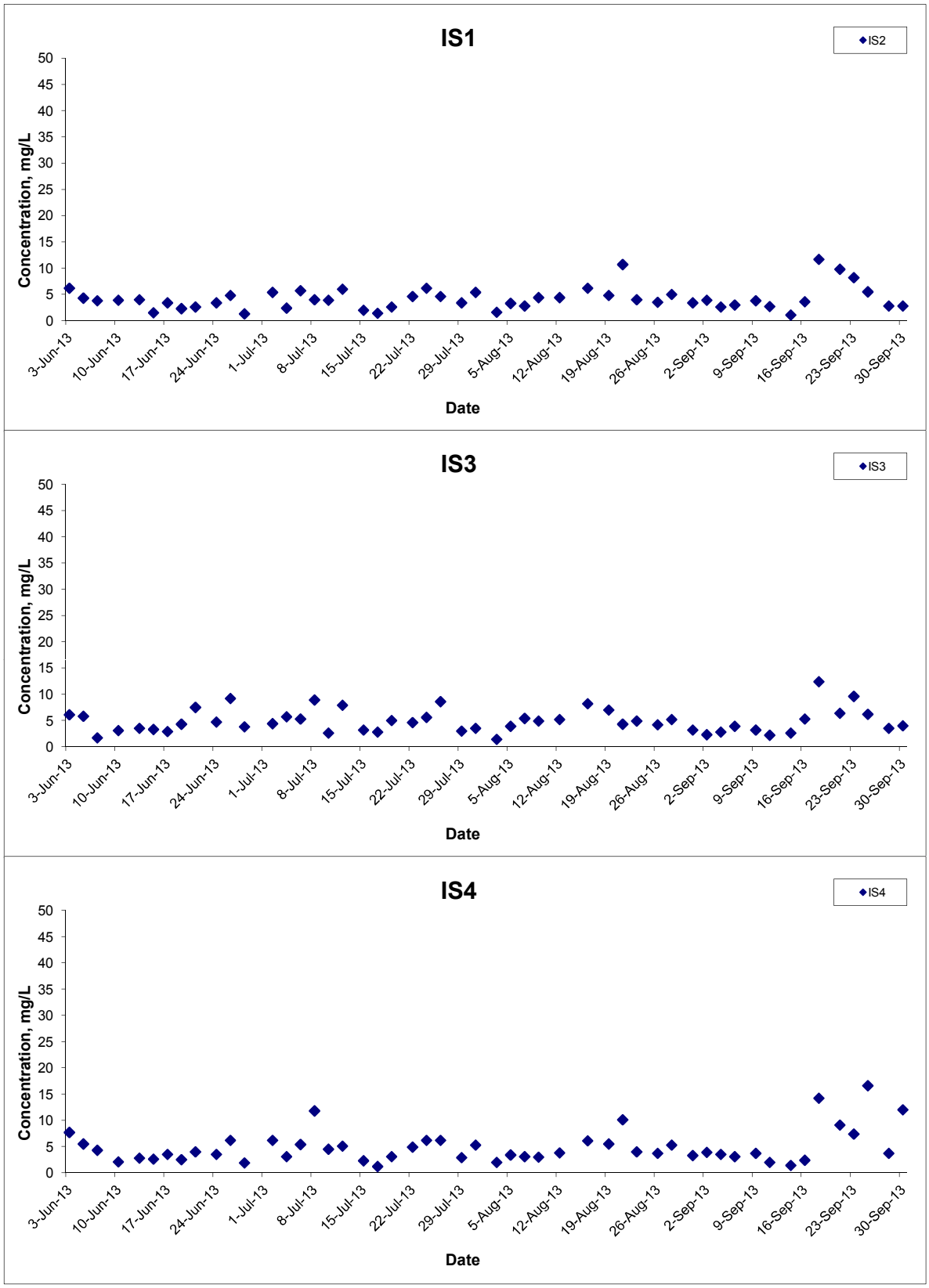
		Date: Sep 13	Appendix: H	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Title	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S Date Sep 13	Project No. MA12014 Appendix H	CINOTECH

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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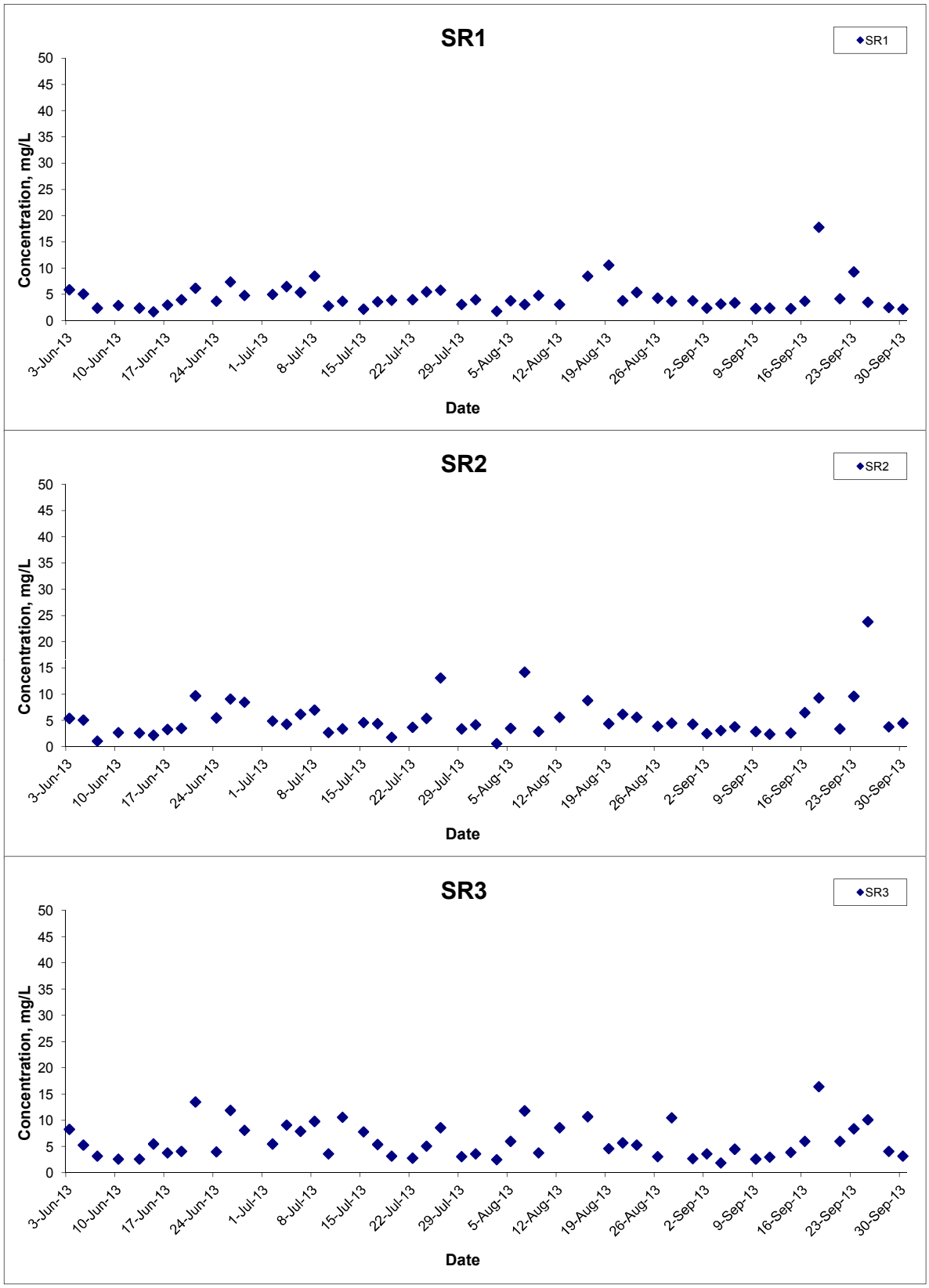
		Date Sep 13	Appendix H	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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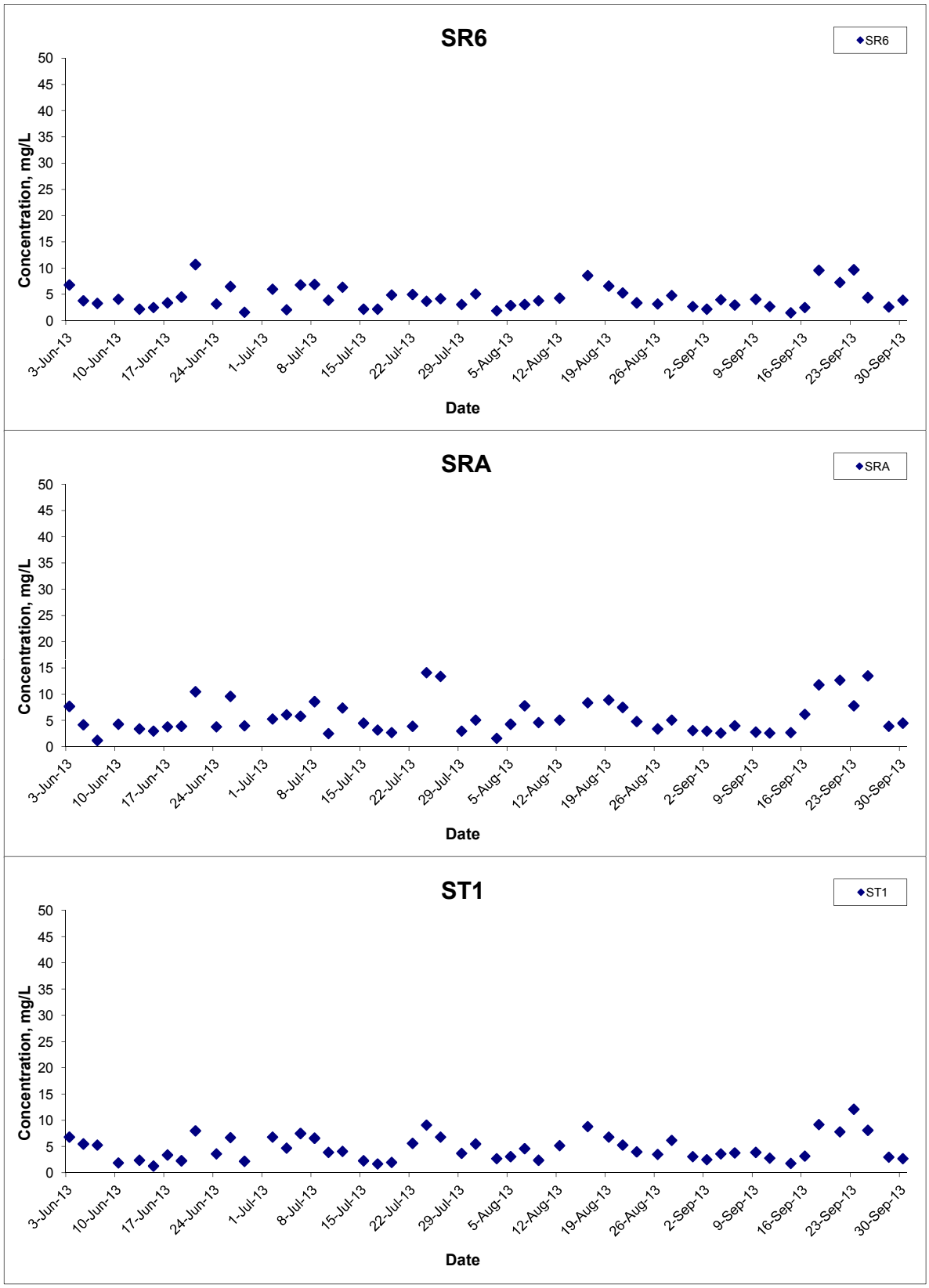

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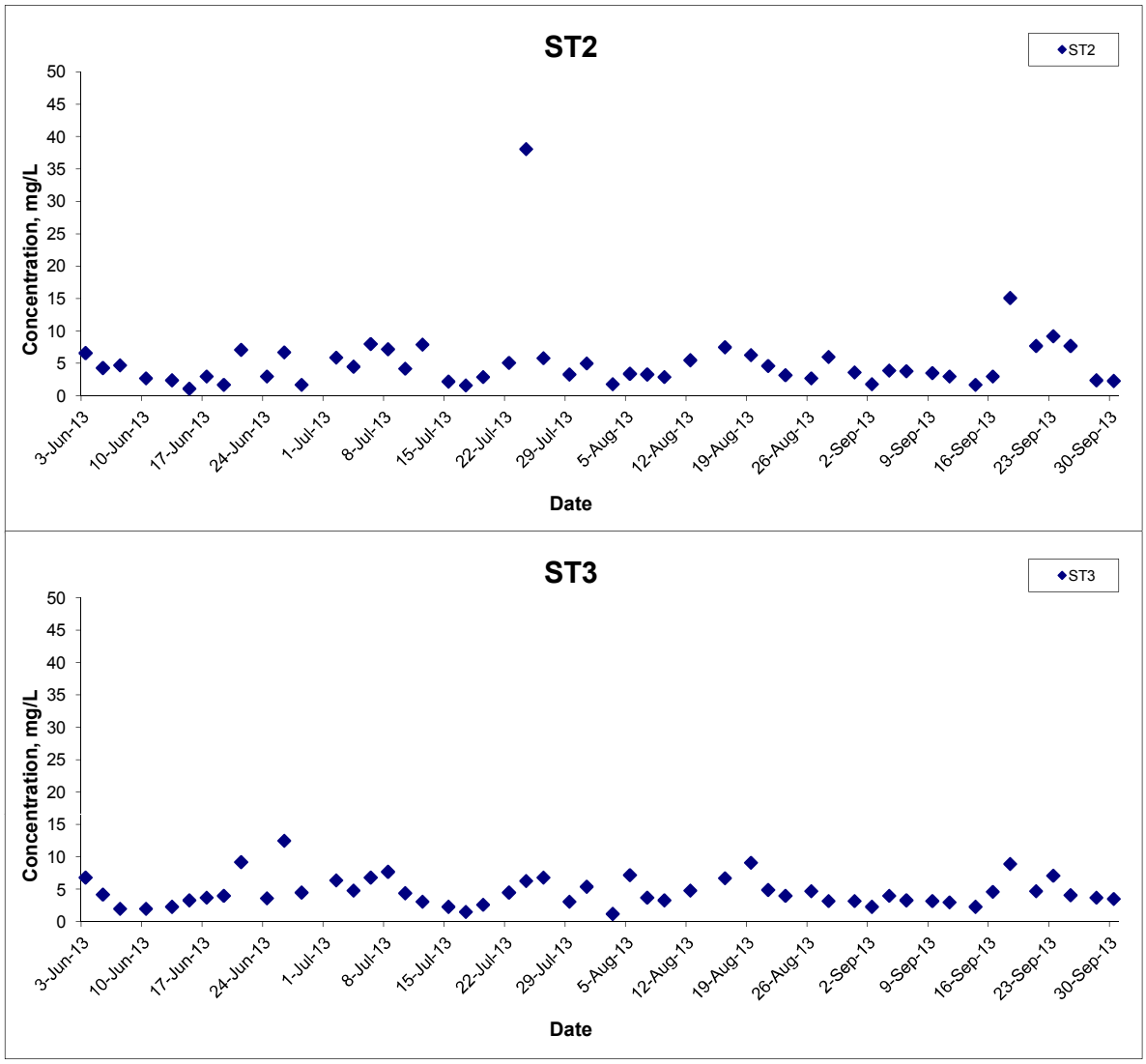
		Date: Sep 13	Appendix: H	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



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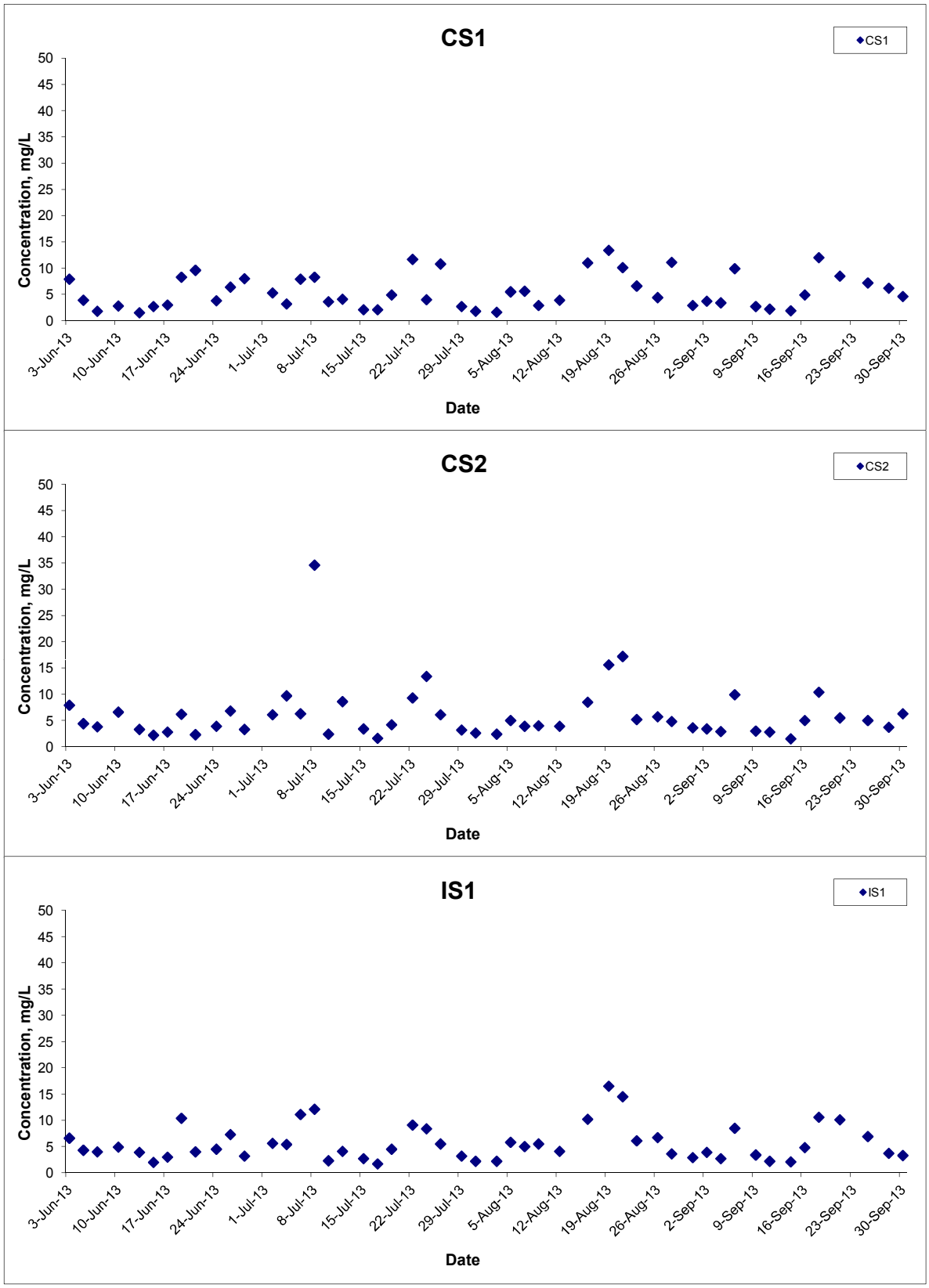
		Date: Sep 13	Appendix: H	

Suspended Solids (Depth-averaged) at Mid-Flood Tide



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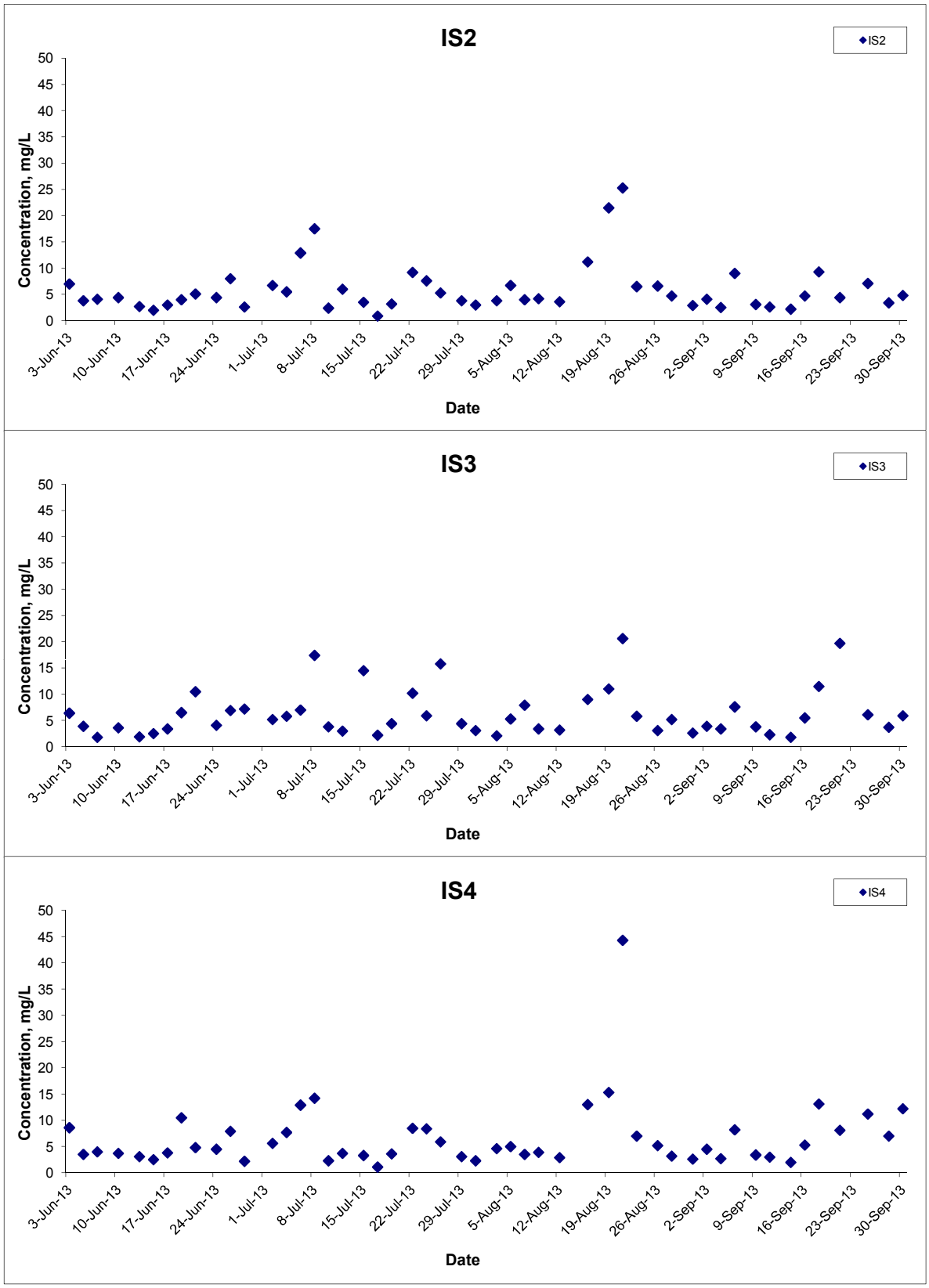
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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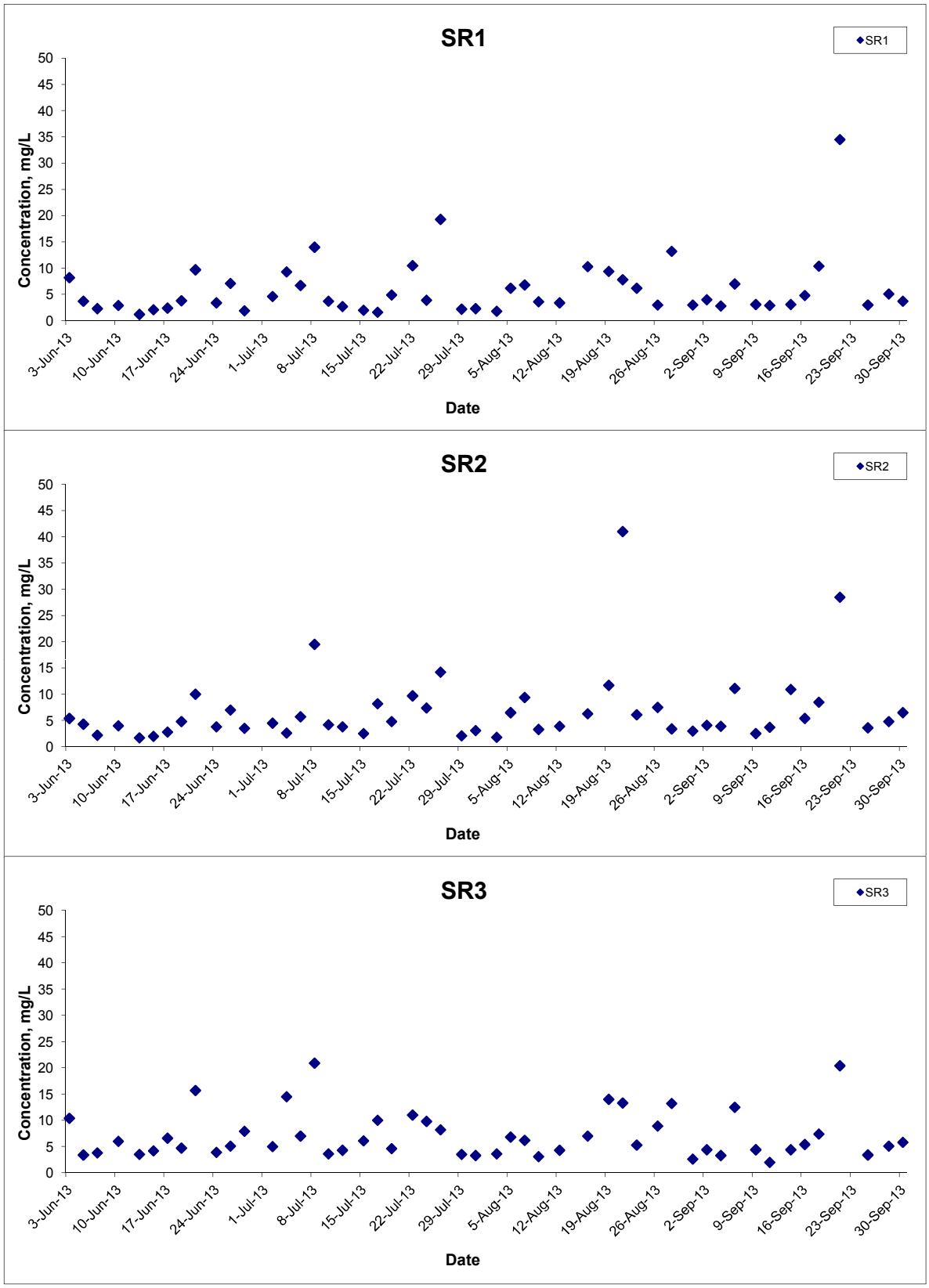

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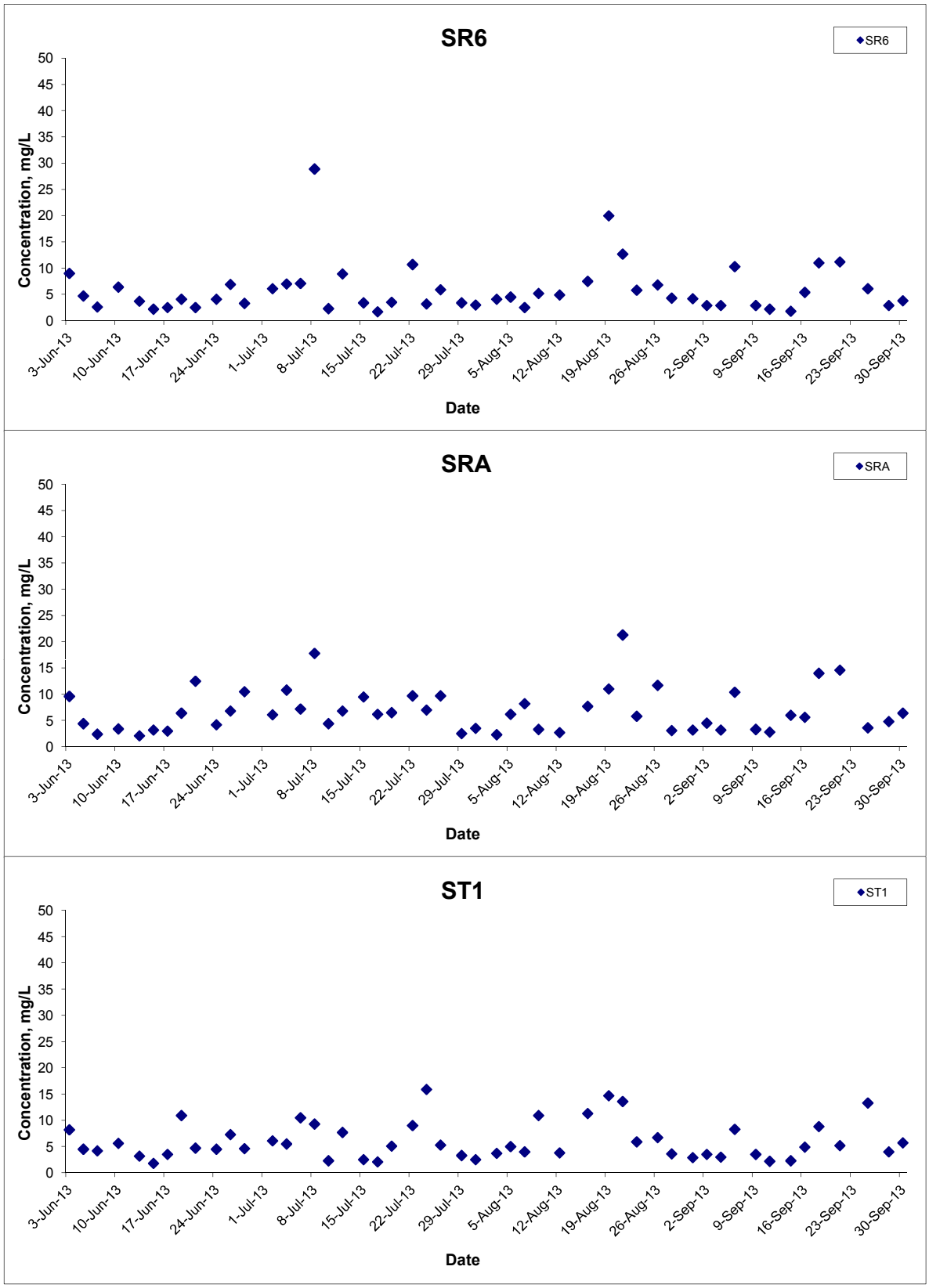
		Date: Sep 13	Appendix: H	

Suspended Solids (Depth-averaged) at Mid-Flood Tide



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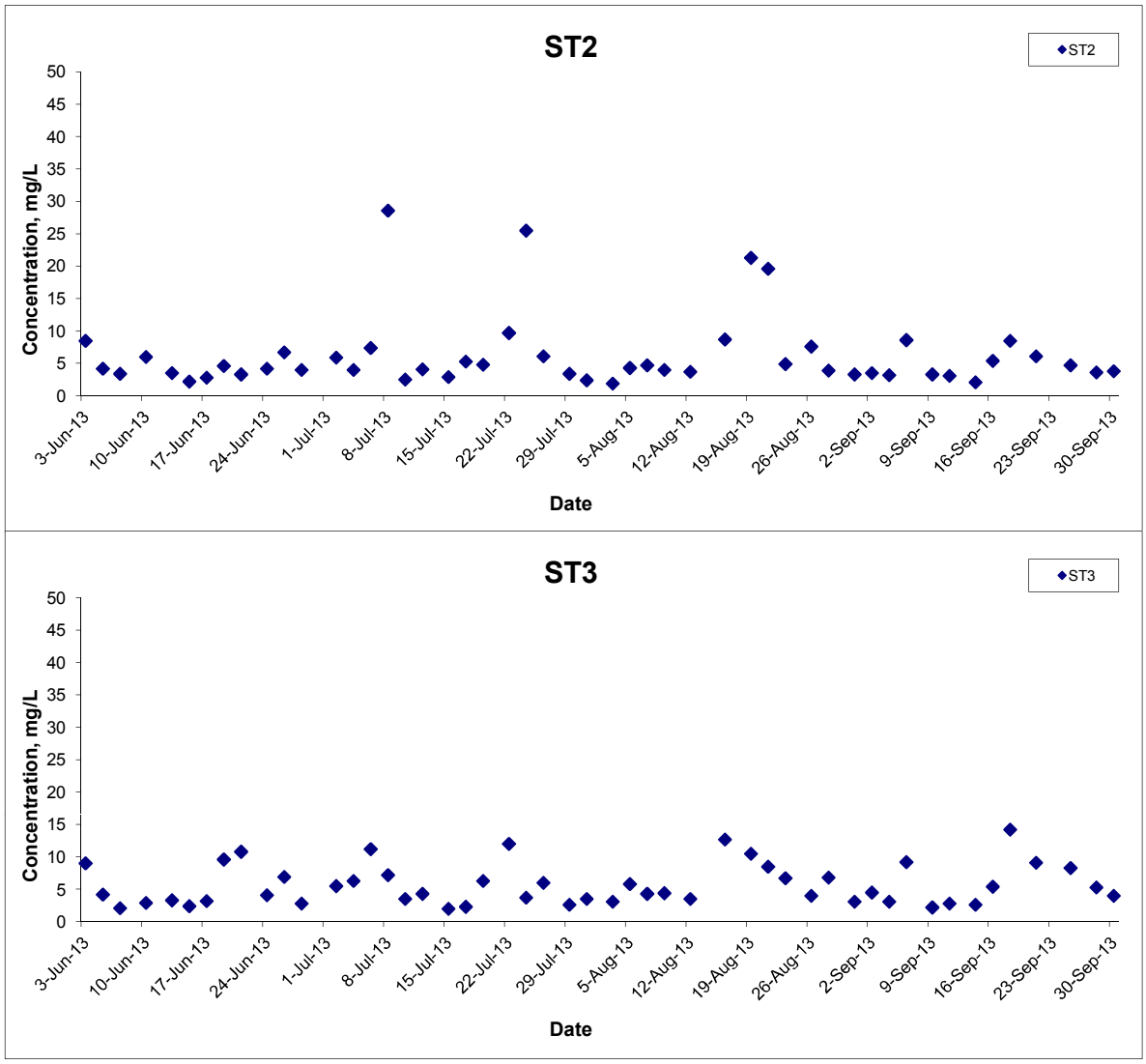
Suspended Solids (Depth-averaged) at Mid-Flood Tide



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APPENDIX I
DOLPHIN MONITORING REPORT
(LINE TRANSECT)

Contract No. HY/2011/09
Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Dolphin Monthly Monitoring

Eighth Monthly Progress Report (September 2013)

Submitted by
Samuel K.Y. Hung, Ph.D., Hong Kong Cetacean Research Project

1 October, 2013

1. Introduction

1.1. The Hong Kong Link Road (HKLR) serves to connect the Hong Kong-Zhuhai-Macao Bridge (HZMB) Main Bridge at the Hong Kong Special Administrative Region (HKSAR) Boundary and the HZMB Hong Kong Boundary Crossing Facilities (HKBCF) located at the northeastern waters of the Hong Kong International Airport.

1.2. According to the updated Environmental Monitoring and Audit (EM&A) Manual (for HKLR), monthly line-transect vessel surveys for Chinese White Dolphin should be conducted to cover the West Lantau survey area as in AFCD annual marine mammal monitoring programme.

1.3. In November 2012, Hong Kong Cetacean Research Project (HKCRP) has been commissioned by Dragages – China Harbour – VSL JV to conduct this 34-month dolphin monitoring study in order to collect data on Chinese White Dolphins during the construction phase (i.e. impact period) of the HKLR09 project in West Lantau (WL) survey area, and to analyze the collected survey data to monitor distribution, encounter rate, abundance, activities and occurrence of dolphin calves. Photo-identification will also be collected from individual Chinese White Dolphins to examine their individual range patterns and core area use.

1.4. From the monitoring results, any changes in dolphin occurrence within the study area will be examined for possible causes, and appropriate actions and additional mitigation measures will be recommended as necessary.

1.5. This report is the eighth monthly progress report under the HKLR09 construction phase dolphin monitoring programme, summarizing the results of the survey findings during the month of September 2013.

2. Monitoring Methodology

2.1. Vessel-based Line-transect Survey

2.1.1. According to the requirement of the updated EM&A manual, dolphin monitoring programme should cover all transect lines in WL survey area (see Figure 1) twice per month throughout the entire construction period. The co-ordinates of all transect lines are shown in Table 1.

Table 1. Co-ordinates of transect lines in WL survey area

Line No.		Easting	Northing		Line No.		Easting	Northing
1	Start Point	803750	818500		7	Start Point	800200	810450
1	End Point	803750	815500		7	End Point	801400	810450
2	Start Point	803750	815500		8	Start Point	801300	809450
2	End Point	802940	815500		8	End Point	799750	809450
3	Start Point	802550	814500		9	Start Point	799400	808450
3	End Point	803700	814500		9	End Point	801430	808450
4	Start Point	803120	813600		10	Start Point	801500	807450
4	End Point	801640	813600		10	End Point	799600	807450
5	Start Point	801100	812450		11	Start Point	800300	806500
5	End Point	802900	812450		11	End Point	801750	806500
6	Start Point	802400	811500		12	Start Point	801760	805450
6	End Point	800660	811500		12	End Point	800700	805450

2.1.2. The survey team used standard line-transect methods (Buckland et al. 2001) to conduct the systematic vessel surveys, and followed the same technique of data collection that has been adopted over the last 16 years of marine

mammal monitoring surveys in Hong Kong developed by HKCRP (see Hung 2012). For each monitoring vessel survey, a 15-m inboard vessel (*Standard* 31516) with an open upper deck (about 4.5 m above water surface) was used to make observations from the flying bridge area.

2.1.3. Two experienced observers (a data recorder and a primary observer) made up the on-effort survey team, and the survey vessel transited different transect lines at a constant speed of 13-15 km per hour. The data recorder searched with unaided eyes and filled out the datasheets, while the primary observer searched for dolphins and porpoises continuously through 7 x 50 *Steiner* marine binoculars. Both observers searched the sea ahead of the vessel, between 270^{o} and 90^{o} (in relation to the bow, which is defined as 0^{o}). One to two additional experienced observers were available on the boat to work in shift (i.e. rotate every 30 minutes) in order to minimize fatigue of the survey team members. All observers were experienced in small cetacean survey techniques and identifying local cetacean species.

2.1.4. During on-effort survey periods, the survey team recorded effort data including time, position (latitude and longitude), weather conditions (Beaufort sea state and visibility), and distance traveled in each series (a continuous period of search effort) with the assistance of a handheld GPS (*Garmin eTrex Legend*).

2.1.5. Data including time, position and vessel speed were also automatically and continuously logged by handheld GPS throughout the entire survey for subsequent review.

2.1.6. When dolphins were sighted, the survey team would end the survey effort, and immediately record the initial sighting distance and angle of the dolphin group from the survey vessel, as well as the sighting time and position. Then the research vessel was diverted from its course to approach the animals for species identification, group size estimation, assessment of group composition, and behavioural observations. The perpendicular distance (PSD) of the dolphin group to the transect line was later calculated from the initial sighting distance and angle.

2.1.7. Survey effort being conducted along the parallel transect lines that were perpendicular to the coastlines (as indicated in Figure 1) was labeled as

"primary" survey effort, while the survey effort being conducted along the connecting lines between parallel lines was labeled as "secondary" survey effort. According to HKCRP long-term dolphin monitoring data, encounter rates of Chinese white dolphins deduced from effort and sighting data collected along primary and secondary lines were similar in survey areas around Lantau Island. Therefore, primary and secondary survey effort were both presented as on-effort survey effort in this report.

2.1.8. Encounter rates of Chinese white dolphins (number of on-effort sightings per 100 km of survey effort) were calculated in WL survey area in relation to the amount of survey effort conducted during each month of monitoring survey. Only data collected under Beaufort 3 or below condition would be used for encounter rate analysis. Dolphin encounter rates were calculated using primary survey effort alone, as well as the combined survey effort from both primary and secondary lines.

2.2. Photo-identification Work

2.2.1. When a group of Chinese White Dolphins were sighted during the line-transect survey, the survey team would end effort and approach the group slowly from the side and behind to take photographs of them. Every attempt was made to photograph every dolphin in the group, and even photograph both sides of the dolphins, since the colouration and markings on both sides may not be symmetrical.

2.2.2. Two professional digital cameras (*Canon* EOS 7D and 60D models), each equipped with long telephoto lenses (100-400 mm zoom), were available on board for researchers to take sharp, close-up photographs of dolphins as they surfaced. The images were shot at the highest available resolution and stored on Compact Flash memory cards for downloading onto a computer.

2.2.3. All digital images taken in the field were first examined, and those containing potentially identifiable individuals were sorted out. These photographs would then be examined in greater detail, and were carefully compared to the existing Chinese White Dolphin photo-identification catalogue maintained by HKCRP since 1995.

2.2.4. Chinese White Dolphins can be identified by their natural markings, such as nicks, cuts, scars and deformities on their dorsal fin and body, and their

unique spotting patterns were also used as secondary identifying features (Jefferson 2000).

2.2.5. All photographs of each individual were then compiled and arranged in chronological order, with data including the date and location first identified (initial sighting), re-sightings, associated dolphins, distinctive features, and age classes entered into a computer database.

3. Monitoring Results

3.1. Vessel-based Line-transect Survey

3.1.1. During the monitoring month of September 2013, two complete sets of systematic line-transect vessel surveys were conducted on the 11th and 19th, to cover all transect lines in WL survey area twice. The survey routes of each survey day were presented in Figures 2-3.

3.1.2. From these surveys, a total of 61.55 km of survey effort was collected, with 92.7% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) (Appendix I). Moreover, the total survey effort conducted on primary lines (the vertical lines perpendicular to the coastlines) was 40.43 km, while the effort on secondary lines (the lines connecting the primary lines) was 21.12 km.

3.1.3. During the monitoring surveys in September 2013, a total of 20 groups of 49 Chinese White Dolphins were sighted (Appendix II). All except one sighting were made during on-effort search. Among the 19 on-effort sightings, 15 of them were made on primary lines, while the other four were made on secondary lines. One of the dolphin groups was associated with operating pair trawlers just across the HK-Guangdong border.

3.1.4. Distribution of all dolphin sightings made during September's surveys was shown in Figure 4. These dolphin groups were evenly distributed throughout the WL survey area, with no particular concentration (Figure 4). It appeared that more sightings were made in inshore waters than offshore waters. Notably, only one sighting was made near to the HKLR09 alignment (Figure 4).

3.1.5. During September's surveys, encounter rates of Chinese White Dolphins deduced from the survey effort and on-effort sighting data made under

favourable conditions (Beaufort 3 or below) are shown in Tables 2 & 3.

Table 2. Dolphin encounter rates (sightings per 100 km of survey effort) per set during September's surveys in West Lantau (WL)

		Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)	**Encounter rate (ANI)** (no. of dolphins from all on-effort sightings per 100 km of survey effort)
		Primary Lines Only	**Primary Lines Only**
WL	Set 1: Sept. 11th	34.9	94.8
	Set 2: Sept. 19th	35.5	112.6

Table 3. Overall dolphin encounter rates (sightings per 100 km of survey effort) in September's surveys on primary lines only as well as both primary lines and secondary lines in West Lantau

	Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort)		**Encounter rate (ANI)** (no. of dolphins from all on-effort sightings per 100 km of survey effort)	
	Primary Lines Only	**Both Primary and Secondary Lines**	**Primary Lines Only**	**Both Primary and Secondary Lines**
West Lantau	35.2	29.8	102.9	75.3

3.1.6. The average group size of Chinese White Dolphins was 2.45 individuals per group during September's surveys, which was lower than previous months of monitoring surveys. Most groups comprised of only a few dolphins, while two medium-sized groups composed of six animals were also sighted.

3.2. Photo-identification Work

3.2.1. A total of 15 re-sightings of 15 known individual Chinese White Dolphins were made during the September's surveys (Appendices III and IV). All individuals were sighted only once during the two sets of monitoring surveys.

3.2.2. Only one well-recognized mother (WL159) was accompanied with her calf during her re-sighting in September's surveys.

3.3. Conclusion

3.3.1. During this month of dolphin monitoring, marine construction activities have continued under this contract. However, no adverse impact on Chinese white dolphins was noticeable from general observations.

3.3.2. Due to the monthly variation in dolphin occurrence within the study area, it would be more appropriate to draw conclusion on whether any impacts on dolphins have been detected related to the construction activities of this project in the quarterly EM&A report, where comparison on distribution, group size and encounter rates of dolphins between the quarterly impact monitoring period and baseline monitoring period will be made.

4. References

- Buckland, S. T., Anderson, D. R., Burnham, K. P., Laake, J. L., Borchers, D. L., and Thomas, L. 2001. Introduction to distance sampling: estimating abundance of biological populations. Oxford University Press, London.

- Hung, S. K. 2012. Monitoring of marine mammals in Hong Kong waters – data collection: final report (2011-12). An unpublished report submitted to the Agriculture, Fisheries and Conservation Department of Hong Kong SAR Government, 120 pp.

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- Jefferson, T. A. 2000. Population biology of the Indo-Pacific hump-backed dolphin in Hong Kong waters. Wildlife Monographs 144:1-65.

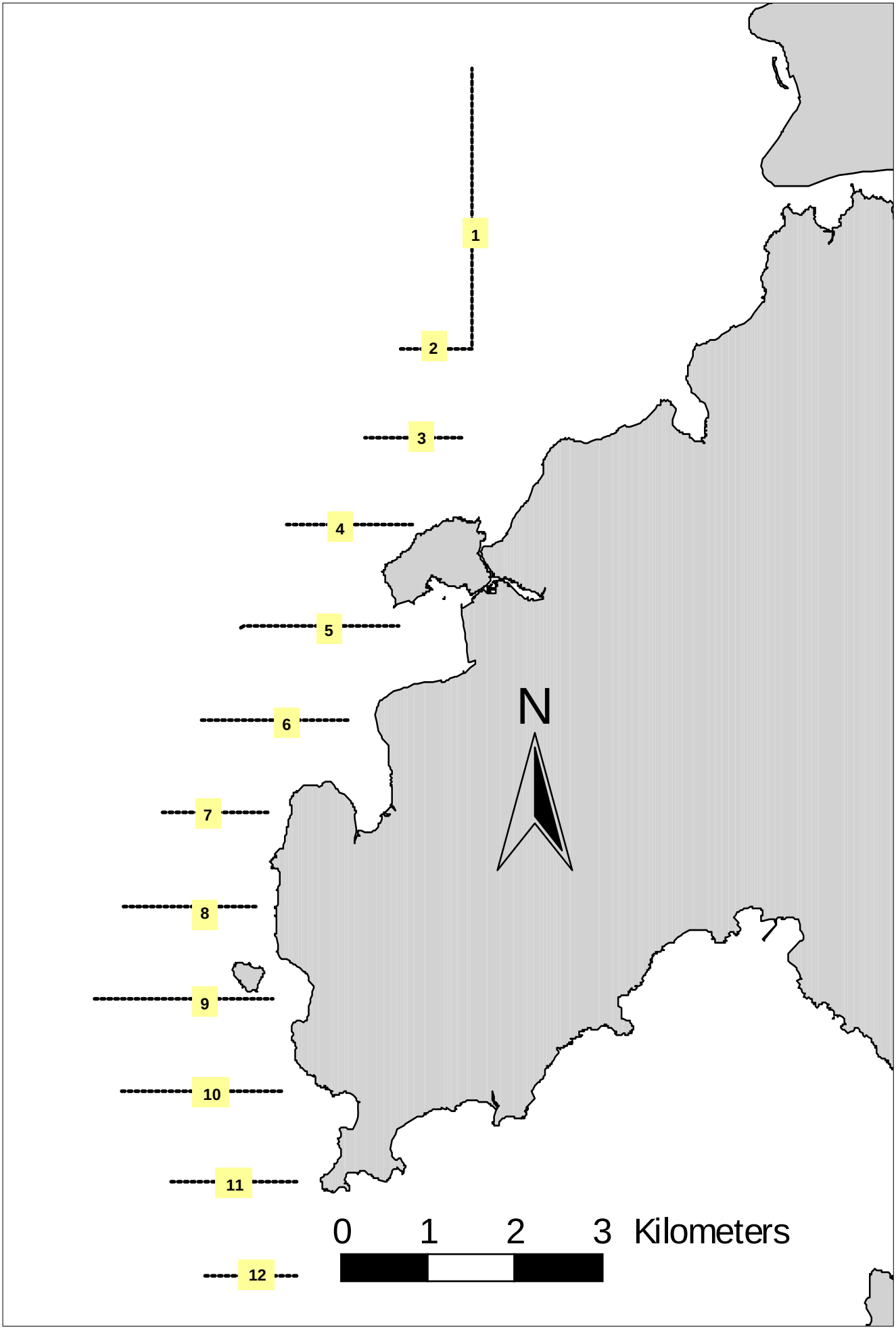


Figure 1. Transect Line Layout in West Lantau Survey Areas

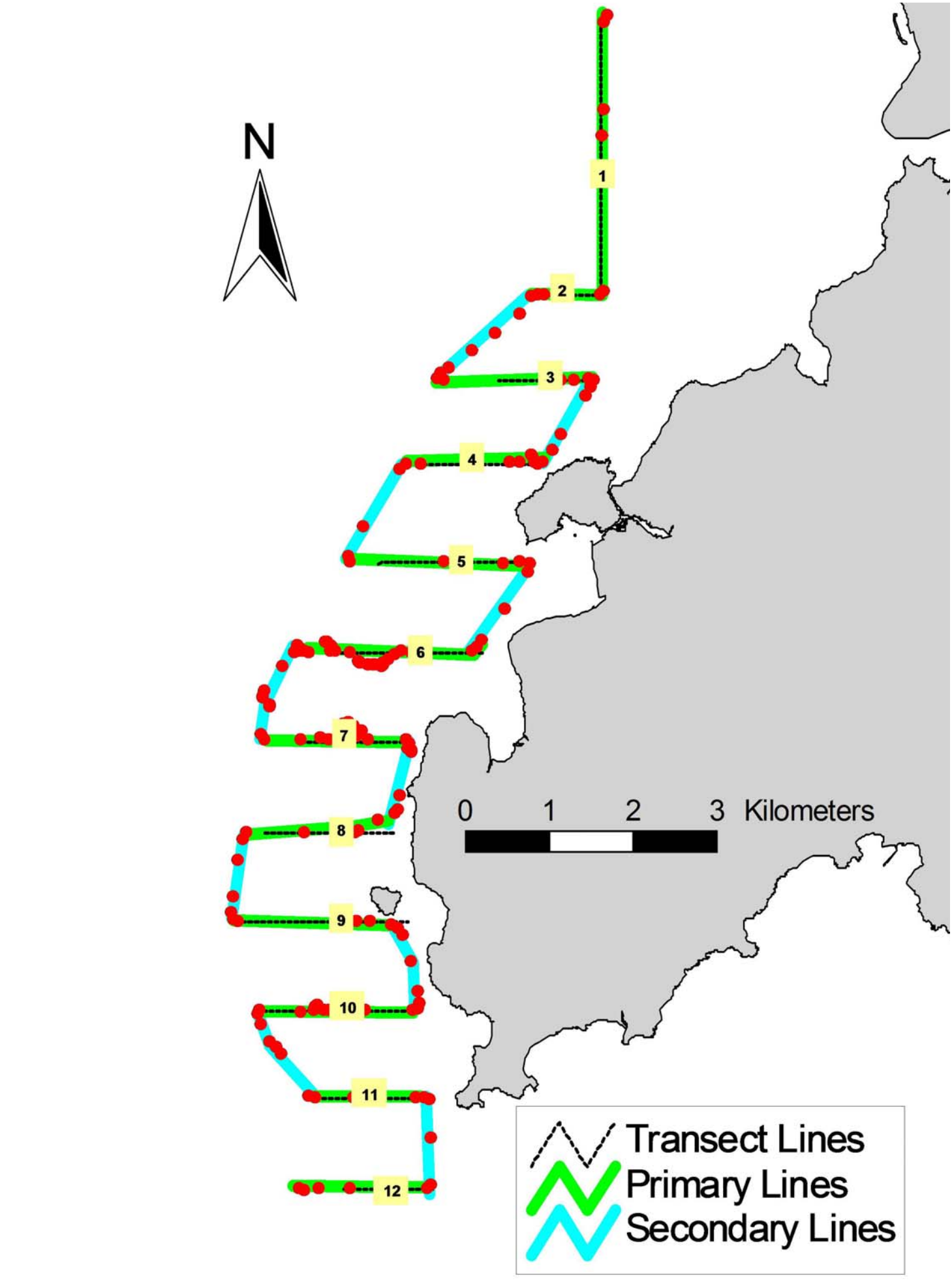


Figure 2. Survey Route on September 11th, 2013 (note: red dots represent the tracked positions of survey boat logged continuously by GPS throughout the course of the survey)

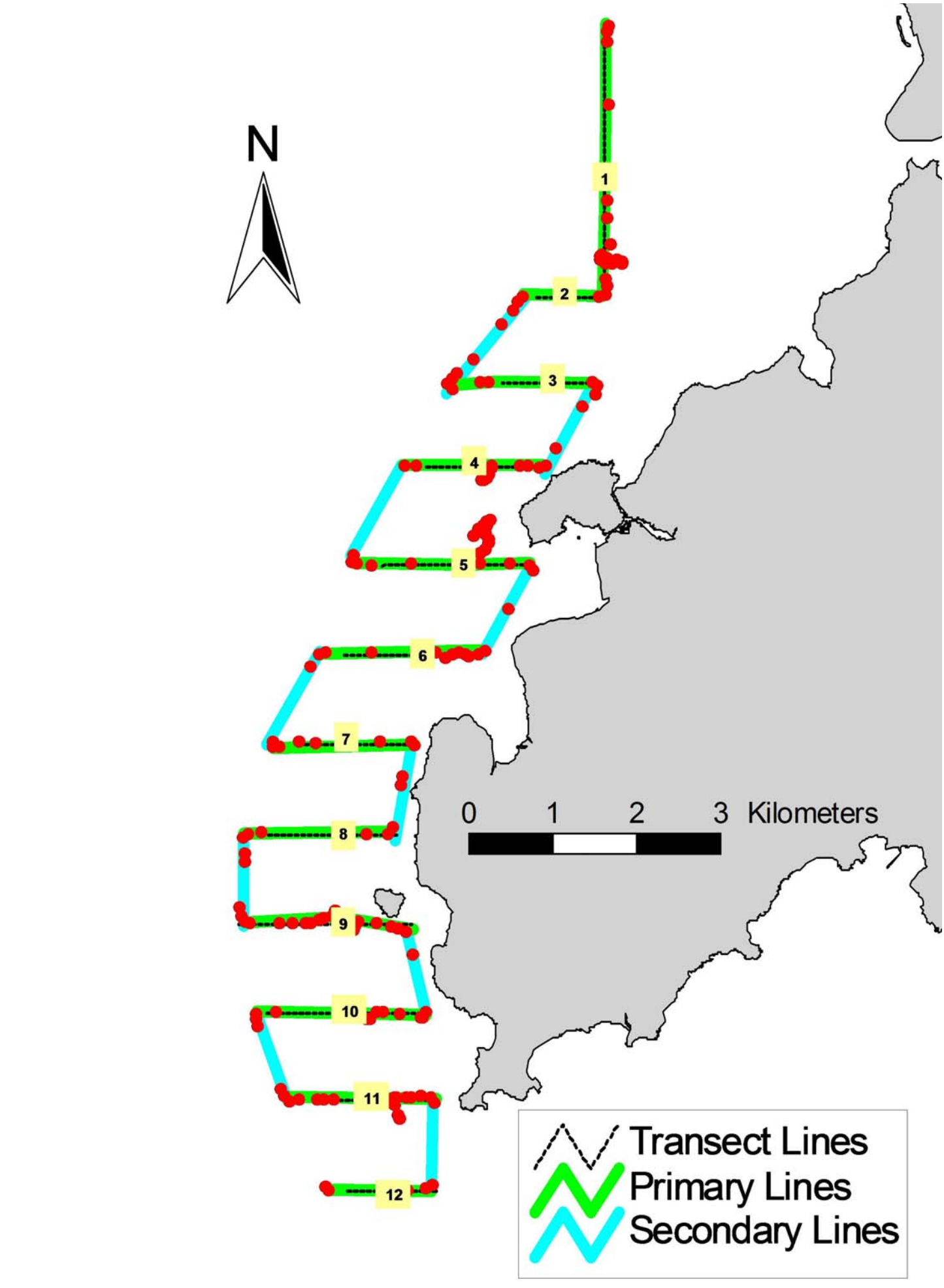


Figure 3. Survey Route on September 19th, 2013 (note: red dots represent the tracked positions of survey boat logged continuously by GPS throughout the course of the survey)

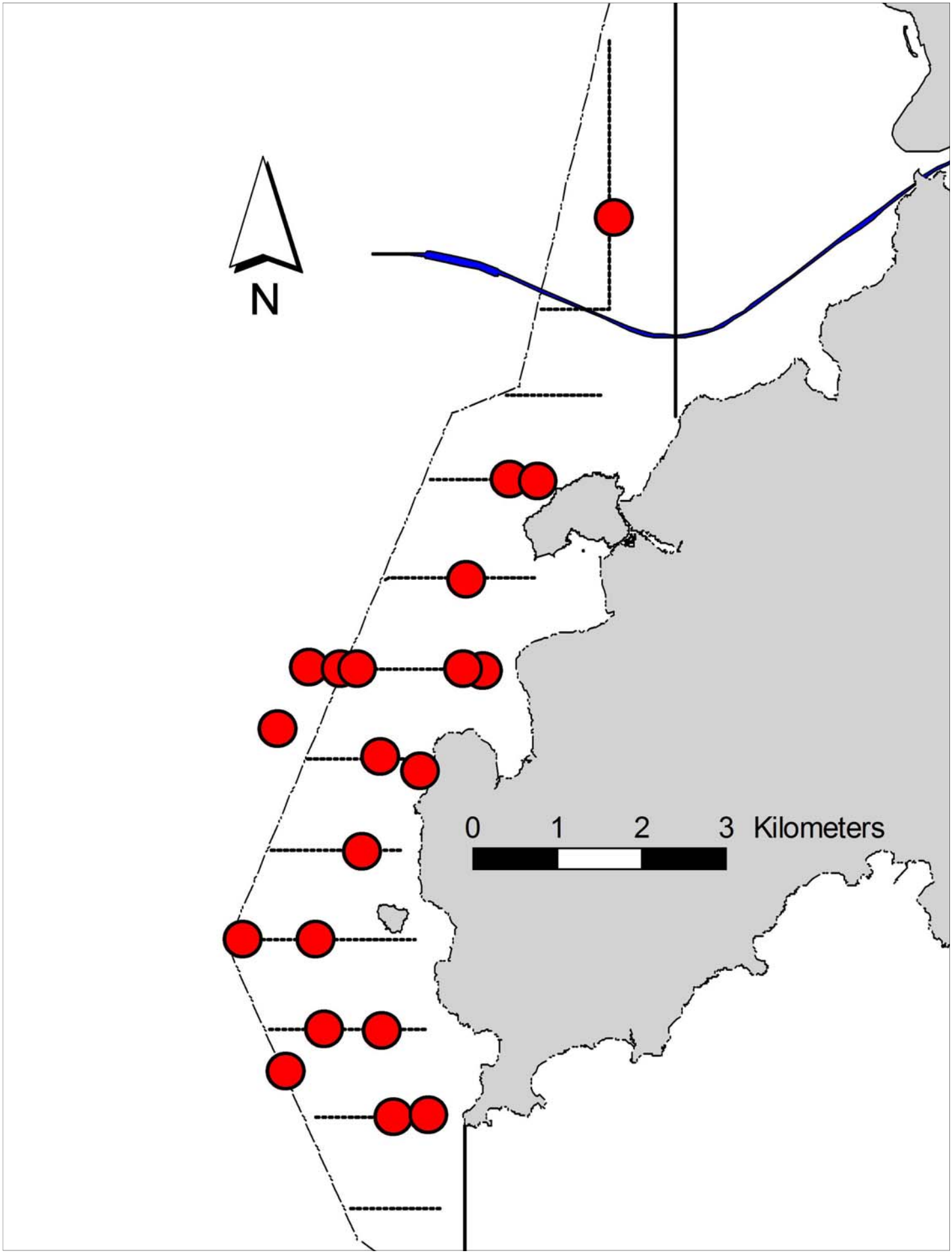


Figure 4. Distribution of Chinese White Dolphin Sighting during September 2013 HKLR09 Monitoring Surveys

Appendix I. HKLR09 Survey Effort Database (September 2013)

(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

DATE	AREA	BEAU	EFFORT	SEASON	VESSEL	TYPE	P/S
11-Sep-13	W LANTAU	2	8.52	AUTUMN	STANDARD31516	HKLR	P
11-Sep-13	W LANTAU	3	11.52	AUTUMN	STANDARD31516	HKLR	P
11-Sep-13	W LANTAU	2	5.53	AUTUMN	STANDARD31516	HKLR	S
11-Sep-13	W LANTAU	3	5.08	AUTUMN	STANDARD31516	HKLR	S
19-Sep-13	W LANTAU	1	2.65	AUTUMN	STANDARD31516	HKLR	P
19-Sep-13	W LANTAU	2	5.68	AUTUMN	STANDARD31516	HKLR	P
19-Sep-13	W LANTAU	3	8.55	AUTUMN	STANDARD31516	HKLR	P
19-Sep-13	W LANTAU	4	2.71	AUTUMN	STANDARD31516	HKLR	P
19-Sep-13	W LANTAU	5	0.8	AUTUMN	STANDARD31516	HKLR	P
19-Sep-13	W LANTAU	2	5.94	AUTUMN	STANDARD31516	HKLR	S
19-Sep-13	W LANTAU	3	3.61	AUTUMN	STANDARD31516	HKLR	S
19-Sep-13	W LANTAU	4	0.96	AUTUMN	STANDARD31516	HKLR	S

Appendix II. HKLR09 Chinese White Dolphin Sighting Database (September 2013)

(Abberviations: STG# = Sighting Number; HRD SZ = Dolphin Herd Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance; ND = Not Determined; BOAT ASSOC. = Fishing Boat Association; P/S: Sighting Made on Primary/Secondary Lines)

DATE	STG #	TIME	HRD SZ	AREA	BEAU	PSD	EFFORT	TYPE	NORTHING	EASTING	SEASON	BOAT ASSOC.	P/S
11-Sep-13	1	1136	1	W LANTAU	3	16	ON	HKLR	806986	799921	AUTUMN	NONE	S
11-Sep-13	2	1144	1	W LANTAU	3	149	ON	HKLR	807439	800376	AUTUMN	NONE	P
11-Sep-13	3	1204	4	W LANTAU	3	873	ON	HKLR	808438	799409	AUTUMN	PAIR	P
11-Sep-13	4	1215	1	W LANTAU	2	317	ON	HKLR	809432	800813	AUTUMN	NONE	P
11-Sep-13	5	1226	2	W LANTAU	2	187	ON	HKLR	810316	801496	AUTUMN	NONE	S
11-Sep-13	6	1231	4	W LANTAU	2	193	ON	HKLR	810472	801043	AUTUMN	NONE	P
11-Sep-13	7	1248	1	W LANTAU	2	506	ON	HKLR	810785	799817	AUTUMN	NONE	S
11-Sep-13	8	1256	4	W LANTAU	2	670	ON	HKLR	811471	800200	AUTUMN	NONE	P
11-Sep-13	9	1304	2	W LANTAU	3	ND	OFF	HKLR	811459	800560	AUTUMN	NONE	
11-Sep-13	10	1309	4	W LANTAU	3	45	ON	HKLR	811458	800756	AUTUMN	NONE	P
11-Sep-13	11	1400	1	W LANTAU	3	100	ON	HKLR	813558	802555	AUTUMN	NONE	P
19-Sep-13	1	0926	3	W LANTAU	3	71	ON	HKLR	816479	803788	AUTUMN	NONE	P
19-Sep-13	2	1003	2	W LANTAU	2	502	ON	HKLR	813557	802885	AUTUMN	NONE	P
19-Sep-13	3	1028	6	W LANTAU	3	178	ON	HKLR	812452	802057	AUTUMN	NONE	P
19-Sep-13	4	1049	1	W LANTAU	2	314	ON	HKLR	811444	802251	AUTUMN	NONE	S
19-Sep-13	5	1052	1	W LANTAU	2	52	ON	HKLR	811455	802014	AUTUMN	NONE	P
19-Sep-13	6	1132	6	W LANTAU	2	15	ON	HKLR	808436	800265	AUTUMN	NONE	P
19-Sep-13	7	1152	1	W LANTAU	3	750	ON	HKLR	807427	801046	AUTUMN	NONE	P
19-Sep-13	8	1209	3	W LANTAU	5	32	ON	HKLR	806463	801198	AUTUMN	NONE	P
19-Sep-13	9	1218	1	W LANTAU	5	20	ON	HKLR	806495	801601	AUTUMN	NONE	P

Appendix III. Individual dolphins identified during HKLR09 monitoring surveys in September 2013

ID#	DATE	STG#	AREA
CH113	19/09/13	1	W LANTAU
CH153	19/09/13	2	W LANTAU
NL156	19/09/13	6	W LANTAU
NL296	11/09/13	8	W LANTAU
WL33	19/09/13	3	W LANTAU
WL46	19/09/13	6	W LANTAU
WL68	19/09/13	6	W LANTAU
WL79	11/09/13	6	W LANTAU
WL109	19/09/13	8	W LANTAU
WL120	11/09/13	9	W LANTAU
WL153	11/09/13	11	W LANTAU
WL159	11/09/13	6	W LANTAU
WL182	19/09/13	8	W LANTAU
WL199	19/09/13	6	W LANTAU
WL208	19/09/13	3	W LANTAU

Appendix IV. Photographs of Identified Individual Dolphins in September 2013 (HKLR09)

Appendix IV. (cont'd)

APPENDIX J
WIND DATA

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
1-Sep-2013	00:00	1.3	NE
1-Sep-2013	01:00	1.5	NNE
1-Sep-2013	02:00	1	N
1-Sep-2013	03:00	1.2	N
1-Sep-2013	04:00	0.8	N
1-Sep-2013	05:00	1.5	ENE
1-Sep-2013	06:00	1.5	ENE
1-Sep-2013	07:00	2.4	NE
1-Sep-2013	08:00	2.8	ENE
1-Sep-2013	09:00	2.6	ENE
1-Sep-2013	10:00	3.3	NE
1-Sep-2013	11:00	2.9	N
1-Sep-2013	12:00	3.8	N
1-Sep-2013	13:00	3.8	NNE
1-Sep-2013	14:00	2.7	NNE
1-Sep-2013	15:00	2.7	NNE
1-Sep-2013	16:00	2.5	NNE
1-Sep-2013	17:00	2.9	NE
1-Sep-2013	18:00	1.7	NE
1-Sep-2013	19:00	0.7	NE
1-Sep-2013	20:00	0.8	NE
1-Sep-2013	21:00	0.8	N
1-Sep-2013	22:00	0.7	NE
1-Sep-2013	23:00	1	NE
2-Sep-2013	00:00	1.2	ENE
2-Sep-2013	01:00	1.5	ENE
2-Sep-2013	02:00	1.7	ENE
2-Sep-2013	03:00	1.2	ENE
2-Sep-2013	04:00	0.8	ENE
2-Sep-2013	05:00	0.5	ENE
2-Sep-2013	06:00	0.3	ENE
2-Sep-2013	07:00	0.3	W
2-Sep-2013	08:00	0.6	NNE
2-Sep-2013	09:00	0.9	NE
2-Sep-2013	10:00	1.2	NE
2-Sep-2013	11:00	2.5	N
2-Sep-2013	12:00	2.4	N
2-Sep-2013	13:00	2.5	NW
2-Sep-2013	14:00	2.7	NE
2-Sep-2013	15:00	2.4	ENE
2-Sep-2013	16:00	2.1	ENE
2-Sep-2013	17:00	2.2	ENE
2-Sep-2013	18:00	2.2	ENE
2-Sep-2013	19:00	2.1	ENE
2-Sep-2013	20:00	1.9	ENE
2-Sep-2013	21:00	1.5	ENE
2-Sep-2013	22:00	1.3	ENE
2-Sep-2013	23:00	1.2	ENE
3-Sep-2013	00:00	1.2	NE
3-Sep-2013	01:00	1.2	NE
3-Sep-2013	02:00	1.5	NE
3-Sep-2013	03:00	1.4	NE
3-Sep-2013	04:00	1.2	N
3-Sep-2013	05:00	0.8	NE

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Sep-2013	06:00	1.2	NE
3-Sep-2013	07:00	0.8	ENE
3-Sep-2013	08:00	1.2	ENE
3-Sep-2013	09:00	1.7	E
3-Sep-2013	10:00	2	ENE
3-Sep-2013	11:00	2	SW
3-Sep-2013	12:00	2.4	SSW
3-Sep-2013	13:00	2.9	S
3-Sep-2013	14:00	2.9	SW
3-Sep-2013	15:00	2.4	SSW
3-Sep-2013	16:00	2.4	S
3-Sep-2013	17:00	2.4	SW
3-Sep-2013	18:00	1.9	SW
3-Sep-2013	19:00	1.3	SW
3-Sep-2013	20:00	1.3	SSW
3-Sep-2013	21:00	1.2	SSW
3-Sep-2013	22:00	1.5	SW
3-Sep-2013	23:00	1.3	SW
4-Sep-2013	00:00	0.8	SSW
4-Sep-2013	01:00	1.2	SSW
4-Sep-2013	02:00	1.5	W
4-Sep-2013	03:00	1.4	SW
4-Sep-2013	04:00	1.2	N
4-Sep-2013	05:00	1.9	WNW
4-Sep-2013	06:00	1.3	NE
4-Sep-2013	07:00	2	N
4-Sep-2013	08:00	2.7	SE
4-Sep-2013	09:00	3.3	SSE
4-Sep-2013	10:00	4.1	E
4-Sep-2013	11:00	4.5	N
4-Sep-2013	12:00	3.4	NE
4-Sep-2013	13:00	3.3	NNE
4-Sep-2013	14:00	3.1	N
4-Sep-2013	15:00	3.6	N
4-Sep-2013	16:00	3.3	N
4-Sep-2013	17:00	2.4	NE
4-Sep-2013	18:00	2.1	ESE
4-Sep-2013	19:00	1.5	E
4-Sep-2013	20:00	1	NE
4-Sep-2013	21:00	1.8	SW
4-Sep-2013	22:00	2.1	SW
4-Sep-2013	23:00	1.9	SSW
5-Sep-2013	00:00	2.1	SSW
5-Sep-2013	01:00	2.2	SSE
5-Sep-2013	02:00	2.1	SSW
5-Sep-2013	03:00	2.4	SSW
5-Sep-2013	04:00	2.6	SSW
5-Sep-2013	05:00	2.8	SW
5-Sep-2013	06:00	2.2	SSW
5-Sep-2013	07:00	2	SSW
5-Sep-2013	08:00	1.9	SSW
5-Sep-2013	09:00	3.3	SSW
5-Sep-2013	10:00	3.8	SSW
5-Sep-2013	11:00	3.6	SSW

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
5-Sep-2013	12:00	3.6	SSW
5-Sep-2013	13:00	4	SSW
5-Sep-2013	14:00	3.8	SSW
5-Sep-2013	15:00	3.9	SSW
5-Sep-2013	16:00	3.6	SSW
5-Sep-2013	17:00	2.7	SSE
5-Sep-2013	18:00	2.4	SSE
5-Sep-2013	19:00	2	SE
5-Sep-2013	20:00	2.2	SE
5-Sep-2013	21:00	2.4	SSE
5-Sep-2013	22:00	2.7	SW
5-Sep-2013	23:00	2.6	SW
6-Sep-2013	00:00	2	SSW
6-Sep-2013	01:00	1.8	S
6-Sep-2013	02:00	1.2	SSW
6-Sep-2013	03:00	1.5	SW
6-Sep-2013	04:00	1.4	WSW
6-Sep-2013	05:00	1	SW
6-Sep-2013	06:00	0.8	SW
6-Sep-2013	07:00	1	SW
6-Sep-2013	08:00	1.7	SW
6-Sep-2013	09:00	2	SSW
6-Sep-2013	10:00	1.9	S
6-Sep-2013	11:00	2.6	SSW
6-Sep-2013	12:00	2.5	SSE
6-Sep-2013	13:00	2.9	SSE
6-Sep-2013	14:00	2.4	SSE
6-Sep-2013	15:00	2.2	ENE
6-Sep-2013	16:00	2.4	NNE
6-Sep-2013	17:00	2.1	SW
6-Sep-2013	18:00	1.6	NE
6-Sep-2013	19:00	0.9	NE
6-Sep-2013	20:00	0.7	NW
6-Sep-2013	21:00	0.7	SW
6-Sep-2013	22:00	0.6	SSW
6-Sep-2013	23:00	0.7	SW
7-Sep-2013	00:00	0.7	SW
7-Sep-2013	01:00	0.6	SW
7-Sep-2013	02:00	0.8	SW
7-Sep-2013	03:00	0.5	SSW
7-Sep-2013	04:00	0.3	SSW
7-Sep-2013	05:00	0.5	S
7-Sep-2013	06:00	0.4	SW
7-Sep-2013	07:00	0.9	SW
7-Sep-2013	08:00	0.7	SSE
7-Sep-2013	09:00	0.5	WSW
7-Sep-2013	10:00	1	WSW
7-Sep-2013	11:00	1.7	SSE
7-Sep-2013	12:00	1.9	NNE
7-Sep-2013	13:00	1.7	NNE
7-Sep-2013	14:00	1.7	SW
7-Sep-2013	15:00	2.2	SW
7-Sep-2013	16:00	1.9	SSW
7-Sep-2013	17:00	1.5	S

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
7-Sep-2013	18:00	1.2	SSW
7-Sep-2013	19:00	0.3	SW
7-Sep-2013	20:00	1	SW
7-Sep-2013	21:00	0.3	NE
7-Sep-2013	22:00	0.3	NE
7-Sep-2013	23:00	1.2	E
8-Sep-2013	00:00	1.7	ENE
8-Sep-2013	01:00	2.1	S
8-Sep-2013	02:00	1.5	ESE
8-Sep-2013	03:00	1.4	ESE
8-Sep-2013	04:00	2.1	NNE
8-Sep-2013	05:00	2.4	SW
8-Sep-2013	06:00	2	SW
8-Sep-2013	07:00	2.1	SW
8-Sep-2013	08:00	2.2	SE
8-Sep-2013	09:00	2.2	SW
8-Sep-2013	10:00	2.4	SSW
8-Sep-2013	11:00	2.6	SW
8-Sep-2013	12:00	2.4	SW
8-Sep-2013	13:00	1.3	SW
8-Sep-2013	14:00	1.5	SW
8-Sep-2013	15:00	2.7	SW
8-Sep-2013	16:00	3.1	S
8-Sep-2013	17:00	2.2	S
8-Sep-2013	18:00	1.3	S
8-Sep-2013	19:00	0.8	NNW
8-Sep-2013	20:00	0.5	NW
8-Sep-2013	21:00	0.8	W
8-Sep-2013	22:00	0.7	NW
8-Sep-2013	23:00	1	N
9-Sep-2013	00:00	1.7	NNE
9-Sep-2013	01:00	2.4	SW
9-Sep-2013	02:00	3.3	SW
9-Sep-2013	03:00	3.1	SSW
9-Sep-2013	04:00	2.6	SSW
9-Sep-2013	05:00	2.2	SW
9-Sep-2013	06:00	2.2	SW
9-Sep-2013	07:00	2.2	SSE
9-Sep-2013	08:00	2.9	S
9-Sep-2013	09:00	3.8	SW
9-Sep-2013	10:00	4.2	SW
9-Sep-2013	11:00	4.3	SW
9-Sep-2013	12:00	4.8	S
9-Sep-2013	13:00	4.3	SW
9-Sep-2013	14:00	3.6	SSW
9-Sep-2013	15:00	2.9	SW
9-Sep-2013	16:00	2.9	SW
9-Sep-2013	17:00	2.7	SSE
9-Sep-2013	18:00	2	SE
9-Sep-2013	19:00	1.5	SW
9-Sep-2013	20:00	1.3	SW
9-Sep-2013	21:00	1.7	WSW
9-Sep-2013	22:00	1.7	WSW
9-Sep-2013	23:00	2.2	SW

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
10-Sep-2013	00:00	1.7	WSW
10-Sep-2013	01:00	1.7	SW
10-Sep-2013	02:00	2	SW
10-Sep-2013	03:00	2.6	S
10-Sep-2013	04:00	2.8	NNE
10-Sep-2013	05:00	2.4	SW
10-Sep-2013	06:00	2.6	NNE
10-Sep-2013	07:00	2.2	NE
10-Sep-2013	08:00	3.3	NE
10-Sep-2013	09:00	3.8	NE
10-Sep-2013	10:00	3.4	N
10-Sep-2013	11:00	3.6	NE
10-Sep-2013	12:00	3.8	N
10-Sep-2013	13:00	3.1	NNW
10-Sep-2013	14:00	3.2	NW
10-Sep-2013	15:00	2.6	NW
10-Sep-2013	16:00	2.2	N
10-Sep-2013	17:00	2.1	NE
10-Sep-2013	18:00	2.1	NE
10-Sep-2013	19:00	1.5	ENE
10-Sep-2013	20:00	1.4	E
10-Sep-2013	21:00	1.2	E
10-Sep-2013	22:00	1.5	E
10-Sep-2013	23:00	2.2	NE
11-Sep-2013	00:00	2.4	ESE
11-Sep-2013	01:00	2.9	SE
11-Sep-2013	02:00	2.8	ESE
11-Sep-2013	03:00	1.9	SE
11-Sep-2013	04:00	2.4	SSE
11-Sep-2013	05:00	2.4	SE
11-Sep-2013	06:00	2.4	ESE
11-Sep-2013	07:00	2.2	SE
11-Sep-2013	08:00	2.6	ESE
11-Sep-2013	09:00	3.2	SE
11-Sep-2013	10:00	3.1	SSE
11-Sep-2013	11:00	3.4	SSE
11-Sep-2013	12:00	3.6	SE
11-Sep-2013	13:00	2.9	SSE
11-Sep-2013	14:00	2.9	SE
11-Sep-2013	15:00	3.4	SSE
11-Sep-2013	16:00	1.9	SSE
11-Sep-2013	17:00	1.3	SSE
11-Sep-2013	18:00	2.1	SSE
11-Sep-2013	19:00	1.7	SW
11-Sep-2013	20:00	1.8	SW
11-Sep-2013	21:00	1.7	SW
11-Sep-2013	22:00	1.9	SW
11-Sep-2013	23:00	1.9	SW
12-Sep-2013	00:00	2.2	W
12-Sep-2013	01:00	1.9	SSW
12-Sep-2013	02:00	1.5	SW
12-Sep-2013	03:00	1.7	SSW
12-Sep-2013	04:00	2.7	SSW
12-Sep-2013	05:00	2	S

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
12-Sep-2013	06:00	2.2	E
12-Sep-2013	07:00	2.7	E
12-Sep-2013	08:00	2.9	E
12-Sep-2013	09:00	3.3	NW
12-Sep-2013	10:00	3.2	NE
12-Sep-2013	11:00	2.9	NE
12-Sep-2013	12:00	3	NE
12-Sep-2013	13:00	3.6	NE
12-Sep-2013	14:00	2.6	SSE
12-Sep-2013	15:00	2.4	WNW
12-Sep-2013	16:00	2.4	SSW
12-Sep-2013	17:00	1.5	W
12-Sep-2013	18:00	1.8	E
12-Sep-2013	19:00	1.7	SSW
12-Sep-2013	20:00	1.4	NNE
12-Sep-2013	21:00	1.2	E
12-Sep-2013	22:00	1.3	E
12-Sep-2013	23:00	1.5	E
13-Sep-2013	00:00	1.2	E
13-Sep-2013	01:00	1	E
13-Sep-2013	02:00	0.7	E
13-Sep-2013	03:00	1	W
13-Sep-2013	04:00	1.7	W
13-Sep-2013	05:00	1.4	W
13-Sep-2013	06:00	1.5	W
13-Sep-2013	07:00	1.5	W
13-Sep-2013	08:00	2	N
13-Sep-2013	09:00	2.9	N
13-Sep-2013	10:00	2.9	NE
13-Sep-2013	11:00	3.3	E
13-Sep-2013	12:00	3.3	E
13-Sep-2013	13:00	3.1	SSW
13-Sep-2013	14:00	3.1	SSW
13-Sep-2013	15:00	3.3	SW
13-Sep-2013	16:00	3.1	W
13-Sep-2013	17:00	2.4	WSW
13-Sep-2013	18:00	1.7	WSW
13-Sep-2013	19:00	1.3	SSW
13-Sep-2013	20:00	1.2	NNW
13-Sep-2013	21:00	1.4	SW
13-Sep-2013	22:00	1.5	SW
13-Sep-2013	23:00	2.8	SW
14-Sep-2013	00:00	3.2	SW
14-Sep-2013	01:00	3.4	SW
14-Sep-2013	02:00	3.3	S
14-Sep-2013	03:00	3.1	NE
14-Sep-2013	04:00	2.9	WNW
14-Sep-2013	05:00	2.5	NE
14-Sep-2013	06:00	2.4	SW
14-Sep-2013	07:00	2.6	SW
14-Sep-2013	08:00	1.8	SW
14-Sep-2013	09:00	2.7	W
14-Sep-2013	10:00	2.9	W
14-Sep-2013	11:00	2.2	W

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
14-Sep-2013	12:00	2.9	W
14-Sep-2013	13:00	3.5	WSW
14-Sep-2013	14:00	4	W
14-Sep-2013	15:00	3.6	WSW
14-Sep-2013	16:00	3.4	NE
14-Sep-2013	17:00	3.1	NE
14-Sep-2013	18:00	3.4	NNE
14-Sep-2013	19:00	2.6	ENE
14-Sep-2013	20:00	2.9	ENE
14-Sep-2013	21:00	2.7	NE
14-Sep-2013	22:00	3.5	N
14-Sep-2013	23:00	2.9	W
15-Sep-2013	00:00	2.7	N
15-Sep-2013	01:00	2.9	ENE
15-Sep-2013	02:00	2.8	E
15-Sep-2013	03:00	3.2	ENE
15-Sep-2013	04:00	2.5	SE
15-Sep-2013	05:00	2.2	SW
15-Sep-2013	06:00	2.2	NNE
15-Sep-2013	07:00	1.7	N
15-Sep-2013	08:00	2.4	NW
15-Sep-2013	09:00	2.9	SW
15-Sep-2013	10:00	2.9	WSW
15-Sep-2013	11:00	3.1	W
15-Sep-2013	12:00	3.3	WSW
15-Sep-2013	13:00	3.4	WSW
15-Sep-2013	14:00	3.1	WSW
15-Sep-2013	15:00	2.7	S
15-Sep-2013	16:00	2.4	SSW
15-Sep-2013	17:00	2.2	WNW
15-Sep-2013	18:00	2.4	W
15-Sep-2013	19:00	1.9	S
15-Sep-2013	20:00	2.1	SSW
15-Sep-2013	21:00	2	S
15-Sep-2013	22:00	2.2	SSW
15-Sep-2013	23:00	2.2	SW
16-Sep-2013	00:00	1.7	SW
16-Sep-2013	01:00	1.3	SW
16-Sep-2013	02:00	1.2	SW
16-Sep-2013	03:00	1.2	SW
16-Sep-2013	04:00	1.5	SW
16-Sep-2013	05:00	1.7	SW
16-Sep-2013	06:00	1.7	SW
16-Sep-2013	07:00	1.4	SW
16-Sep-2013	08:00	1.7	W
16-Sep-2013	09:00	1.7	SSW
16-Sep-2013	10:00	2.4	SSW
16-Sep-2013	11:00	3.1	SW
16-Sep-2013	12:00	3.3	SW
16-Sep-2013	13:00	2.9	W
16-Sep-2013	14:00	4.3	WNW
16-Sep-2013	15:00	3.3	W
16-Sep-2013	16:00	2.9	W
16-Sep-2013	17:00	2.2	ENE

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
16-Sep-2013	18:00	1	ENE
16-Sep-2013	19:00	0.8	WNW
16-Sep-2013	20:00	1	N
16-Sep-2013	21:00	1	N
16-Sep-2013	22:00	0.8	NNE
16-Sep-2013	23:00	1.4	NNE
17-Sep-2013	00:00	1.2	SSE
17-Sep-2013	01:00	1.2	WSW
17-Sep-2013	02:00	0.7	WSW
17-Sep-2013	03:00	1.2	NW
17-Sep-2013	04:00	1	SSW
17-Sep-2013	05:00	1.2	WSW
17-Sep-2013	06:00	1.4	WSW
17-Sep-2013	07:00	1.5	W
17-Sep-2013	08:00	1.7	WSW
17-Sep-2013	09:00	1.9	WSW
17-Sep-2013	10:00	2.2	W
17-Sep-2013	11:00	2.2	W
17-Sep-2013	12:00	2.9	WSW
17-Sep-2013	13:00	3.8	W
17-Sep-2013	14:00	3.2	WSW
17-Sep-2013	15:00	2.8	WSW
17-Sep-2013	16:00	2.5	SW
17-Sep-2013	17:00	2	WSW
17-Sep-2013	18:00	1.7	W
17-Sep-2013	19:00	1.5	W
17-Sep-2013	20:00	0.6	W
17-Sep-2013	21:00	0.5	W
17-Sep-2013	22:00	0.5	W
17-Sep-2013	23:00	1	ESE
18-Sep-2013	00:00	1.2	ESE
18-Sep-2013	01:00	1	NE
18-Sep-2013	02:00	0.7	SSW
18-Sep-2013	03:00	0.7	SSW
18-Sep-2013	04:00	0.7	W
18-Sep-2013	05:00	0.8	W
18-Sep-2013	06:00	0.7	SSW
18-Sep-2013	07:00	1	E
18-Sep-2013	08:00	1.2	W
18-Sep-2013	09:00	1.7	E
18-Sep-2013	10:00	2	E
18-Sep-2013	11:00	3.1	N
18-Sep-2013	12:00	2	E
18-Sep-2013	13:00	2.1	W
18-Sep-2013	14:00	2.4	W
18-Sep-2013	15:00	2.6	W
18-Sep-2013	16:00	2	W
18-Sep-2013	17:00	2.2	W
18-Sep-2013	18:00	2.6	W
18-Sep-2013	19:00	3.1	WSW
18-Sep-2013	20:00	2.5	W
18-Sep-2013	21:00	2.6	W
18-Sep-2013	22:00	2.2	WNW
18-Sep-2013	23:00	2.2	W

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
19-Sep-2013	00:00	2.4	WSW
19-Sep-2013	01:00	2.4	W
19-Sep-2013	02:00	3.1	WNW
19-Sep-2013	03:00	2.2	W
19-Sep-2013	04:00	2	W
19-Sep-2013	05:00	2.2	W
19-Sep-2013	06:00	2.2	W
19-Sep-2013	07:00	2.1	WSW
19-Sep-2013	08:00	2.4	W
19-Sep-2013	09:00	2.4	W
19-Sep-2013	10:00	3.3	S
19-Sep-2013	11:00	3.6	SSW
19-Sep-2013	12:00	3.4	SSW
19-Sep-2013	13:00	3.5	W
19-Sep-2013	14:00	2.9	WSW
19-Sep-2013	15:00	3.1	W
19-Sep-2013	16:00	2.6	WSW
19-Sep-2013	17:00	3.1	WSW
19-Sep-2013	18:00	2.7	WSW
19-Sep-2013	19:00	2.5	W
19-Sep-2013	20:00	3.4	W
19-Sep-2013	21:00	2.6	W
19-Sep-2013	22:00	2.6	SW
19-Sep-2013	23:00	2.4	WSW
20-Sep-2013	00:00	2.4	W
20-Sep-2013	01:00	2.8	WSW
20-Sep-2013	02:00	2.7	WSW
20-Sep-2013	03:00	3	W
20-Sep-2013	04:00	2.7	WSW
20-Sep-2013	05:00	2.9	WSW
20-Sep-2013	06:00	2.7	S
20-Sep-2013	07:00	2.7	WSW
20-Sep-2013	08:00	2.9	SSW
20-Sep-2013	09:00	4.4	W
20-Sep-2013	10:00	4.8	WSW
20-Sep-2013	11:00	4.5	WSW
20-Sep-2013	12:00	3.7	SW
20-Sep-2013	13:00	3.8	WSW
20-Sep-2013	14:00	4.1	W
20-Sep-2013	15:00	3.1	W
20-Sep-2013	16:00	3.4	W
20-Sep-2013	17:00	2	W
20-Sep-2013	18:00	1.9	W
20-Sep-2013	19:00	1.7	W
20-Sep-2013	20:00	1.7	W
20-Sep-2013	21:00	1.7	WNW
20-Sep-2013	22:00	1.5	W
20-Sep-2013	23:00	1.5	W
21-Sep-2013	00:00	1.5	W
21-Sep-2013	01:00	2.2	WNW
21-Sep-2013	02:00	2.2	W
21-Sep-2013	03:00	1.7	WNW
21-Sep-2013	04:00	1.9	WNW
21-Sep-2013	05:00	1.7	S

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
21-Sep-2013	06:00	1.9	SSW
21-Sep-2013	07:00	1.9	W
21-Sep-2013	08:00	2.2	W
21-Sep-2013	09:00	2.8	W
21-Sep-2013	10:00	2.2	W
21-Sep-2013	11:00	3.3	S
21-Sep-2013	12:00	3.3	SW
21-Sep-2013	13:00	3.3	SSE
21-Sep-2013	14:00	2.1	S
21-Sep-2013	15:00	2.3	W
21-Sep-2013	16:00	2.4	W
21-Sep-2013	17:00	1.6	W
21-Sep-2013	18:00	1.4	W
21-Sep-2013	19:00	0.6	NW
21-Sep-2013	20:00	1	NW
21-Sep-2013	21:00	0.4	ENE
21-Sep-2013	22:00	0.4	ENE
21-Sep-2013	23:00	1	NE
22-Sep-2013	00:00	1	ENE
22-Sep-2013	01:00	1	N
22-Sep-2013	02:00	1	ENE
22-Sep-2013	03:00	1.6	ENE
22-Sep-2013	04:00	6	E
22-Sep-2013	05:00	5.5	NE
22-Sep-2013	06:00	6	ENE
22-Sep-2013	07:00	4.1	ENE
22-Sep-2013	08:00	2.7	W
22-Sep-2013	09:00	1.6	W
22-Sep-2013	10:00	9.9	SW
22-Sep-2013	11:00	9.7	WSW
22-Sep-2013	12:00	10.3	SW
22-Sep-2013	13:00	12.1	SW
22-Sep-2013	14:00	12.7	WSW
22-Sep-2013	15:00	8.8	SSW
22-Sep-2013	16:00	6	SSW
22-Sep-2013	17:00	5.8	NW
22-Sep-2013	18:00	7.2	SW
22-Sep-2013	19:00	8.2	SW
22-Sep-2013	20:00	9.2	SW
22-Sep-2013	21:00	9.2	SW
22-Sep-2013	22:00	9.9	WSW
22-Sep-2013	23:00	10.3	SW
23-Sep-2013	00:00	9.9	SW
23-Sep-2013	01:00	8.2	SSW
23-Sep-2013	02:00	9.9	SW
23-Sep-2013	03:00	4.2	SW
23-Sep-2013	04:00	5.9	SW
23-Sep-2013	05:00	6.1	W
23-Sep-2013	06:00	6	W
23-Sep-2013	07:00	5.4	W
23-Sep-2013	08:00	4	W
23-Sep-2013	09:00	4.7	W
23-Sep-2013	10:00	4.1	W
23-Sep-2013	11:00	4.1	W

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
23-Sep-2013	12:00	3.5	W
23-Sep-2013	13:00	3.2	WNW
23-Sep-2013	14:00	3.5	W
23-Sep-2013	15:00	3.5	W
23-Sep-2013	16:00	3.4	WNW
23-Sep-2013	17:00	3	W
23-Sep-2013	18:00	2	W
23-Sep-2013	19:00	1.7	WNW
23-Sep-2013	20:00	1.4	W
23-Sep-2013	21:00	1.7	WNW
23-Sep-2013	22:00	2.3	WSW
23-Sep-2013	23:00	1.3	SW
24-Sep-2013	00:00	1.4	WNW
24-Sep-2013	01:00	1.7	W
24-Sep-2013	02:00	1.3	NNE
24-Sep-2013	03:00	2.2	N
24-Sep-2013	04:00	2.2	NNE
24-Sep-2013	05:00	2	WNW
24-Sep-2013	06:00	1.9	W
24-Sep-2013	07:00	1.2	NNE
24-Sep-2013	08:00	2.2	NNE
24-Sep-2013	09:00	2.9	NNE
24-Sep-2013	10:00	3.3	ENE
24-Sep-2013	11:00	2.2	NE
24-Sep-2013	12:00	1.9	NE
24-Sep-2013	13:00	1.9	NE
24-Sep-2013	14:00	2	NE
24-Sep-2013	15:00	3.4	NE
24-Sep-2013	16:00	3.1	SW
24-Sep-2013	17:00	2.9	SW
24-Sep-2013	18:00	2	SSW
24-Sep-2013	19:00	1.4	SW
24-Sep-2013	20:00	0.5	S
24-Sep-2013	21:00	1.3	S
24-Sep-2013	22:00	0.8	SW
24-Sep-2013	23:00	0.5	SSW
25-Sep-2013	00:00	0.8	SSW
25-Sep-2013	01:00	1.2	SSW
25-Sep-2013	02:00	1.5	ENE
25-Sep-2013	03:00	1.7	ENE
25-Sep-2013	04:00	1.5	NE
25-Sep-2013	05:00	1.9	NE
25-Sep-2013	06:00	2.4	W
25-Sep-2013	07:00	1.7	NNW
25-Sep-2013	08:00	1.2	NNW
25-Sep-2013	09:00	1.9	NNW
25-Sep-2013	10:00	3.4	NNE
25-Sep-2013	11:00	3.5	E
25-Sep-2013	12:00	3.3	SE
25-Sep-2013	13:00	3.4	SE
25-Sep-2013	14:00	3	SE
25-Sep-2013	15:00	2.9	NE
25-Sep-2013	16:00	2.8	ENE
25-Sep-2013	17:00	2.2	ENE

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
25-Sep-2013	18:00	1.9	ENE
25-Sep-2013	19:00	1.2	NE
25-Sep-2013	20:00	1.2	ENE
25-Sep-2013	21:00	1.2	WSW
25-Sep-2013	22:00	1.5	WSW
25-Sep-2013	23:00	1.7	W
26-Sep-2013	00:00	2.2	W
26-Sep-2013	01:00	1.9	W
26-Sep-2013	02:00	1.9	WSW
26-Sep-2013	03:00	1.9	S
26-Sep-2013	04:00	1.7	NW
26-Sep-2013	05:00	1.5	N
26-Sep-2013	06:00	1.5	N
26-Sep-2013	07:00	1.4	NNE
26-Sep-2013	08:00	1.7	N
26-Sep-2013	09:00	2.8	N
26-Sep-2013	10:00	3.5	N
26-Sep-2013	11:00	2.9	NNE
26-Sep-2013	12:00	2.9	N
26-Sep-2013	13:00	4.5	NNE
26-Sep-2013	14:00	4.3	NNE
26-Sep-2013	15:00	3.8	NE
26-Sep-2013	16:00	3.1	NNE
26-Sep-2013	17:00	2.7	NNE
26-Sep-2013	18:00	2.4	NNE
26-Sep-2013	19:00	2.4	NNE
26-Sep-2013	20:00	2.6	NNE
26-Sep-2013	21:00	2.1	E
26-Sep-2013	22:00	2.2	ENE
26-Sep-2013	23:00	2.4	NNE
27-Sep-2013	00:00	1.9	NNE
27-Sep-2013	01:00	2.1	NNE
27-Sep-2013	02:00	1.7	NE
27-Sep-2013	03:00	2.1	E
27-Sep-2013	04:00	2.2	NE
27-Sep-2013	05:00	2.2	NE
27-Sep-2013	06:00	1.7	E
27-Sep-2013	07:00	1.9	NE
27-Sep-2013	08:00	2.4	NE
27-Sep-2013	09:00	2.9	NE
27-Sep-2013	10:00	3.4	NE
27-Sep-2013	11:00	3.1	NNE
27-Sep-2013	12:00	3.2	NE
27-Sep-2013	13:00	3.8	NNE
27-Sep-2013	14:00	3.6	NE
27-Sep-2013	15:00	2.9	E
27-Sep-2013	16:00	2.6	E
27-Sep-2013	17:00	1.7	ENE
27-Sep-2013	18:00	0.7	E
27-Sep-2013	19:00	0.3	NE
27-Sep-2013	20:00	1.2	NNE
27-Sep-2013	21:00	1.1	NNE
27-Sep-2013	22:00	0.3	NE
27-Sep-2013	23:00	0.5	NE

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
28-Sep-2013	00:00	0.6	NE
28-Sep-2013	01:00	0.5	E
28-Sep-2013	02:00	0.8	E
28-Sep-2013	03:00	0.5	W
28-Sep-2013	04:00	0.4	WNW
28-Sep-2013	05:00	0.8	WNW
28-Sep-2013	06:00	1.5	WNW
28-Sep-2013	07:00	1.1	WNW
28-Sep-2013	08:00	0.2	WNW
28-Sep-2013	09:00	1.2	WNW
28-Sep-2013	10:00	2.9	WNW
28-Sep-2013	11:00	3.1	WNW
28-Sep-2013	12:00	2.2	W
28-Sep-2013	13:00	1.7	WNW
28-Sep-2013	14:00	1.9	W
28-Sep-2013	15:00	2	WNW
28-Sep-2013	16:00	1.7	W
28-Sep-2013	17:00	0.7	W
28-Sep-2013	18:00	0.3	SSW
28-Sep-2013	19:00	1.4	ENE
28-Sep-2013	20:00	0.8	W
28-Sep-2013	21:00	0.5	WSW
28-Sep-2013	22:00	0.7	W
28-Sep-2013	23:00	0.8	WSW
29-Sep-2013	00:00	0.8	WSW
29-Sep-2013	01:00	1.5	WSW
29-Sep-2013	02:00	1.4	WSW
29-Sep-2013	03:00	1.5	WSW
29-Sep-2013	04:00	1.3	WSW
29-Sep-2013	05:00	1.4	W
29-Sep-2013	06:00	0.8	WSW
29-Sep-2013	07:00	0.7	WNW
29-Sep-2013	08:00	1.5	SW
29-Sep-2013	09:00	0.7	SW
29-Sep-2013	10:00	1.3	SW
29-Sep-2013	11:00	1.7	W
29-Sep-2013	12:00	2.1	WNW
29-Sep-2013	13:00	2.4	WNW
29-Sep-2013	14:00	1.9	W
29-Sep-2013	15:00	1.7	WNW
29-Sep-2013	16:00	1.8	WSW
29-Sep-2013	17:00	2.1	W
29-Sep-2013	18:00	1.5	W
29-Sep-2013	19:00	0.7	WSW
29-Sep-2013	20:00	0.2	SW
29-Sep-2013	21:00	1.2	WSW
29-Sep-2013	22:00	1.1	WSW
29-Sep-2013	23:00	0.2	WNW
30-Sep-2013	00:00	0.5	WNW
30-Sep-2013	01:00	0.3	WSW
30-Sep-2013	02:00	0.5	WSW
30-Sep-2013	03:00	0.3	WSW
30-Sep-2013	04:00	0.8	WSW
30-Sep-2013	05:00	0.8	WSW

Appendix J - Wind Data

Date	Time	Wind Speed m/s	Direction
30-Sep-2013	06:00	0.7	WSW
30-Sep-2013	07:00	0.8	WSW
30-Sep-2013	08:00	0.3	WSW
30-Sep-2013	09:00	0.2	W
30-Sep-2013	10:00	1.5	E
30-Sep-2013	11:00	2.2	ENE
30-Sep-2013	12:00	2.8	NNE
30-Sep-2013	13:00	2.2	WSW
30-Sep-2013	14:00	1.7	W
30-Sep-2013	15:00	2.2	W
30-Sep-2013	16:00	1.9	WSW
30-Sep-2013	17:00	1.3	W
30-Sep-2013	18:00	0.8	WNW
30-Sep-2013	19:00	1.5	WNW
30-Sep-2013	20:00	0.5	W
30-Sep-2013	21:00	0.2	W
30-Sep-2013	22:00	1.4	WSW
30-Sep-2013	23:00	0.2	WSW

APPENDIX K
EVENT ACTION PLANS

Event / Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	SO	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and SO; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2.Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and SO; 3. Advise the SO on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and SO; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor;	1. Submit proposals for remedial to SO within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

LIMIT LEVEL				
1.Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform SO, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the SO on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2.Exceedance for two or more consecutive samples	1. Notify IEC, SO, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and SO to discuss the remedial actions to	1. Discuss amongst SO, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SO accordingly; 3. Supervise the implementation of remedial	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented;	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the SO until the exceedance is

	be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results; 8. If exceedance stops, cease additional monitoring.	measures.	5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	abated.

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, SO – Supervising Office

Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET	**IEC**	**SO**	**CONTRACTOR**
Action Level	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Notify IEC and Contractor; 3. Report the results of investigation to the IEC, SO and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the SO accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, SO, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, SO and EPD	1. Discuss amongst SO, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the SO accordingly; 3. Supervise the implementation of	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control;

EVENT	ACTION			
	ET	**IEC**	**SO**	**CONTRACTOR**
	the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results; 8. If exceedance stops, cease additional monitoring.	remedial measures.	problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	5. Stop the relevant portion of works as determined by the SO until the exceedance is abated.

Event and Action Plan for Water Quality

Event	ET Leader	IEC	SO	Contractor
Action level being exceeded by one sampling day	Repeat *in situ* measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor and SO; Check monitoring data, all plant, equipment and Contractor's working methods.	Check monitoring data submitted by ET and Contractor's working methods.	Confirm receipt of notification of non-compliance in writing; Notify Contractor.	Inform the SO and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, SO and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Action level;	Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor on possible remedial actions; Review the proposed mitigation measures submitted by Contractor and advise the SO accordingly; Supervise the implementation of mitigation measures.	Discuss with IEC on the proposed mitigation measures; Ensure mitigation measures are properly implemented; Assess the effectiveness of the implemented mitigation measures.	Inform the Supervising Officer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and consider changes of working methods; Submit proposal of additional mitigation measures to SO within 3 working days of notification and discuss with ET, IEC and SO; Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day	Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, SO and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, SO and Contractor;	Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor on possible remedial actions; Review the proposed mitigation measures submitted by Contractor and advise the SO accordingly.	Confirm receipt of notification of failure in writing; Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to review the working methods.	Inform the SO and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment and consider changes of working methods; Submit proposal of mitigation measures to SO within 3 working days of notification and discuss with ET, IEC and SO.

Event	ET Leader	IEC	SO	Contractor
Limit level being exceeded by two or more consecutive sampling days	Repeat measurement on next day of exceedance to confirm findings; Identify source(s) of impact; Inform IEC, contractor, SO and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, SO and Contractor; Ensure mitigation measures are implemented;	Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor on possible remedial actions; Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the SO accordingly; Supervise the implementation of mitigation measures.	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Ensure mitigation measures are properly implemented; Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.	Take immediate action to avoid further exceedance; Submit proposal of mitigation measures to SO within 3 working days of notification and discuss with ET, IEC and SO; Implement the agreed mitigation measures; Resubmit proposals of mitigation measures if problem still not under control; As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

APPENDIX L
SUMMARY OF EXCEEDANCE

Contract No. HY/2011/09
Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road –
Section between HKSAR Boundary and Scenic Hill

Exceedance Report

(A) Exceedance Report for Air Quality (1 hour TSP)
(NIL in the reporting period)

(B) Exceedance Report for Air Quality (24 hours TSP)
(NIL in the reporting period)

(C) Exceedance Report for Construction Noise
(NIL in the reporting period)

(D) Exceedance Report for Water Quality

Environmental Monitoring	Parameter	No. of Exceedance		No. of Exceedance related to the Construction Activities of this Contract	
		Action Level	Limit Level	Action Level	Limit Level
Water Quality	Dissolved Oxygen (DO) (Surface & Middle)	0	0	0	0
	Dissolved Oxygen (DO) (Bottom)	0	0	0	0
	Turbidity	0	0	0	0
	Suspended Solids (SS)	3	1	0	0

Contract No. HY/2011/09

Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill - Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 18 September 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Control Station(s)	Depth-average Value at Control Stations (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Depth-average Measured Value (mg/L)	Justification*	Validity (Yes/No)
IS1	Mid-ebb	23.5	34.4	CS2	7.3	8.8	9.5	***31.1***	(2) and (6)	No

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks (1) – No major marine construction activity was conducted.
(2) – No pollution discharge from construction activity was observed.
(3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
(4) – The exceeded results were similar or within the ranges baseline monitoring results.
(5) – Monitoring station is situated at the upstream of the construction sites.
(6) – Other(s): Please specify – Only splicing of temporary piles and no activity touching the sea was carried out during the monitoring at mid-ebb tide at near IS1.

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exeedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances

Location Plan:

Reviewed by: Dr. H.F. Chan

Title: Environmental Team Leader

Date: 8 October 2013

Contract No. HY/2011/09

Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill - Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 21 September 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Control Station(s)	Depth-average Value at Control Stations (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Depth-average Measured Value (mg/L)	Justification*	Validity (Yes/No)
SR1	Mid-flood	23.5	34.4	CS1	8.5	10.2	11.1	***34.5***	(2), (5) & (6)	No
SR2								***28.5***	(2), (4) & (6)	No

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks (1) – No major marine construction activity was conducted.
(2) – No pollution discharge from construction activity was observed.
(3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
(4) – The exceeded results were similar or within the ranges baseline monitoring results. (Please refer to Table I)
(5) – Monitoring station is situated at the upstream of the construction sites.
(6) – Other(s): Please specify – No exceedances were recorded at the impact stations (i.e. IS1 to IS4) which are close to construction site

Table I – Summary of Baseline Water Quality Monitoring Results during Mid-Flood Tide

Station(s)	Suspended Solids (mg/L)	
	Min	Max
SR2	8.5	32.5

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exeedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances

Location Plan:

Reviewed by: Dr. H.F. Chan

Title: Environmental Team Leader

Date: 8 October 2013

Contract No. HY/2011/09

Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill - Notification of Environmental Quality Limit Exceedances

Date of Water Quality Monitoring: 25 September 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO) / Turbidity (TURB)~~ / Suspended Solids (SS)

Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Control Station(s)	Depth-average Value at Control Stations (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Depth-average Measured Value (mg/L)	Justification*	Validity (Yes/No)
SR2	Mid-ebb	23.5	34.4	CS2	5.4	6.5	7.0	***23.8***	(2), (4) & (6)	No

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks (1) – No major marine construction activity was conducted.
(2) – No pollution discharge from construction activity was observed.
(3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
(4) – The exceeded results were similar or within the ranges baseline monitoring results. (Please refer to Table I)
(5) – Monitoring station is situated at the upstream of the construction sites.
(6) – Other(s): Please specify – No exceedances were recorded at the impact stations (i.e. IS1 to IS4) which are close to construction site

Table I – Summary of Baseline Water Quality Monitoring Results during Mid-Flood Tide

Station(s)	Suspended Solids (mg/L)	
	Min	Max
SR2	7.0	53.0

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exeedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances

Location Plan:

Reviewed by: Dr. H.F. Chan

Title: Environmental Team Leader

Date: 8 October 2013

APPENDIX M
SITE AUDIT SUMMARY

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	130903
Date	3 September 2013 (Tuesday)
Time	9:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
130903-R01	• Clear the oil spillage from the air compressor at Portion C.	F8
130903-R02	• Remove the pipe at the drainage channel at Portion C.	F6
130903-R03	• Remove the chemical container which placed at near the drain at Portion C.	F6
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 130829), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		3 September 2013
Checked by	Dr. Priscilla Choy		3 September 2013

.Environmental Observations Identified during the Environmental Site Inspection (3 September 2013)

	**Ref No:** 130903-R01 **Impact:** Waste / Chemical Management (F8) **Details:** Clear the oil spillage from the air compressor at Portion C.
	**Ref No:** 130903-R02 **Impact:** Waste / Chemical Management (F6) **Details:** Remove the pipe at the drainage channel at Portion C.
	**Ref No:** 130903-R03 **Impact:** Waste / Chemical Management (F6) **Details:** Remove the chemical container which placed at near the drain at Portion C.

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Rectification Actions taken by the Contractor for Environmental Deficiencies Identified during Previous Audit Session

	**Ref No:** 130829-R01 **Impact:** Noise (E9) **Details:** To close the door of the air compressor at P54. **Follow Up:** The door of the air compressor was closed.
	**Ref No:** 130829-R02 **Impact:** Waste / Chemical Management (F9) **Details:** To seal the hole of the drip tray at P54. **Follow Up:** The hole of the drip tray was covered.

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

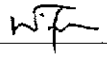
Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	130910
Date	10 September 2013 (Tuesday)
Time	9:00 – 12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
130910-R02	• Clear the residual silt and debris at the platform at P20.	B20
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
130910-R03	• Properly check the air compressor to avoid heavy smoke at P47.	D19
	D. Noise	
130910-R01	• Properly implement the acoustic decoupling measures for the water pump at P0.	E7
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 130903), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		10 September 2013
Checked by	Dr. Priscilla Choy		10 September 2013

.Environmental Observations Identified during the Environmental Site Inspection (10 September 2013)

	**Ref No:** 130910-R01 **Impact:** Noise (E7) **Details:** Properly implement the acoustic decoupling measures for the water pump at P0.
	**Ref No:** 130903-R02 **Impact:** Water Quality (B20) **Details:** Clear the residual silt and debris at the platform at P20.
	**Ref No:** 130910-R03 **Impact:** Air Quality (D19) **Details:** Properly check the air compressor to avoid heavy smoke at P47.

Rectification Actions taken by the Contractor for Environmental Deficiencies Identified during Previous Audit Session

	**Ref No:** 130903-R01 **Impact:** Waste / Chemical Management (F8) **Details:** Clear the oil spillage from the air compressor at Portion C. **Follow Up:** The oil spillage from the air compressor has been cleared.
	**Ref No:** 130903-R02 **Impact:** Waste / Chemical Management (F6) **Details:** Remove the pipe at the drainage channel at Portion C. **Follow Up:** The pipe at the drainage channel has been removed.
	**Ref No:** 130903-R03 **Impact:** Waste / Chemical Management (F6) **Details:** Remove the chemical container which placed at near the drain at Portion C. **Follow Up:** Drip tray was provided for the chemical container.

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	130917
Date	17 September 2013 (Tuesday)
Time	09:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
130917-R03	• Review the drainage plan at Portion C to avoid accumulating ponding water	B1, B4, B8 & B11i
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
130917-R01	• Provide the noise label for the air compressor at Portion C.	E8
	E. Waste / Chemical Management	
130917-R02	• Clear the rubbish at the back of office containers at Portion C.	F1iii
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 130910), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

	Name	Signature	Date
Recorded by	Robin Cheung		23 September 2013
Checked by	Dr. Priscilla Choy		23 September 2013

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Environmental Observations Identified during the Environmental Site Inspection (17 September 2013)

	**Ref No:** 130917-R01 **Impact:** Noise (E8) **Details:** Provide the noise label for the air compressor at Portion C.
	**Ref No:** 130917-R02 **Impact:** Waste / Chemical Management (F1iii) **Details:** Clear the rubbish at the back of office containers at Portion C.
	**Ref No:** 130917-R03 **Impact:** Water Quality (B1, B4, B8 & B11i) **Details:** Review the drainage plan at Portion C to avoid accumulating ponding water

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Rectification Actions taken by the Contractor for Environmental Deficiencies Identified during Previous Audit Session

	**Ref No:** 130910-R01 **Impact:** Noise (E7) **Details:** Properly implement the acoustic decoupling measures for the water pump at P0. **Follow up:** The water pump was removed off site.
	**Ref No:** 130910-R02 **Impact:** Water Quality (B20) **Details:** Clear the residual silt and debris at the platform at P20. **Follow up:** The silt and debris at the edge of the platform was cleared.
	**Ref No:** 130910-R03 **Impact:** Air Quality (D19) **Details:** Properly check the air compressor to avoid heavy smoke at P47. **Follow up:** The air compressor was repaired and no heavy smoke was emitted.

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	130927
Date	27 September 2013 (Friday)
Time	13:30-15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
130927-R01	• Exposed stockpile should be properly covered by tarpaulin to avoid dust emission. (Portion C)	D7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
130927-R02	• General refuse should be properly disposed of and separated from C&D waste materials. (Portion C)	F1iii
130927-R03	• Fencing and other construction materials should be kept a distance from tree protection zone. (Portion C)	F4ii
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 130917), all environmental deficiencies were improved/rectified by contractor during the site inspection.	

	Name	Signature	Date
Recorded by	Robin Cheung		30 September 2013
Checked by	Dr. Priscilla Choy		30 September 2013

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Environmental Observations Identified during the Environmental Site Inspection (27 September 2013)

	**Ref No:** 130927-R01 **Impact:** Noise (D7) **Details:** Exposed stockpile should be properly covered by tarpaulin to avoid dust emission. (Portion C)
	**Ref No:** 130927-R02 **Impact:** Waste / Chemical Management (F1iii) **Details:** General refuse should be properly disposed of and separated from C&D waste materials. (Portion C)
	**Ref No:** 130927-R03 **Impact:** Waste / Chemical Management (F4ii) **Details:** Fencing and other construction materials should be kept a distance from tree protection zone. (Portion C)

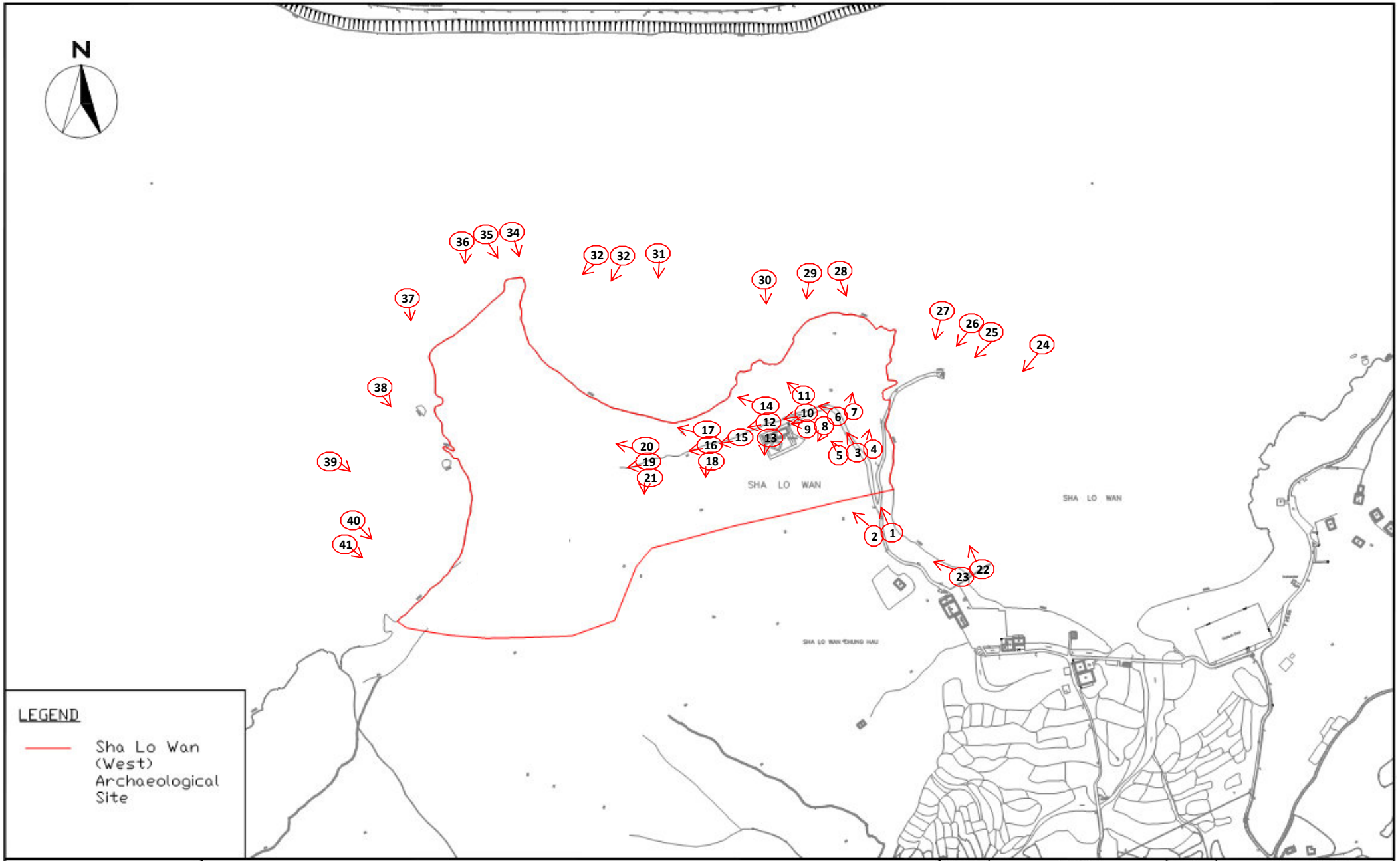
Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Rectification Actions taken by the Contractor for Environmental Deficiencies Identified during Previous Audit Session

	**Ref No:** 130917-R01 **Impact:** Noise (E8) **Details:** Provide the noise label for the air compressor at Portion C. **Follow up:** Proper noise label was provided for the air compressor.
	**Ref No:** 130917-R02 **Impact:** Waste / Chemical Management (F1iii) **Details:** Clear the rubbish at the back of office containers at Portion C. **Follow up:** General refuse was cleared.
	**Ref No:** 130917-R03 **Impact:** Water Quality (B1, B4, B8 & B11i) **Details:** Review the drainage plan at Portion C to avoid accumulating ponding water **Follow up:** A pipe was connected for the drainage of the ponding water.



CINOTECH
Cinotech Consultants Limited

Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

LOCATION OF SHA LO WAN (WEST) ARCHAEOLOGICAL SITE

SCALE	1:100	DATE	MAR 2013
CHECK	IT	DRAWN	JW
JOB No.	MA12014	FIGURE NO. 1	REV –

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

CINOTECH 漢臻 consultants limited	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Photographic Records for Sha Lo Wan (West) Archaeological Site	SCALE N.T.S. Project No. MA12014	DATE Sep-13 Appendix M1

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

CINOTECH 漢臻 consultants limited	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Photographic Records for Sha Lo Wan (West) Archaeological Site	SCALE N.T.S. Project No. MA12014	DATE Sep-13 Appendix M2

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

CINOTECH 漢臻 consultants limited	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Photographic Records for Sha Lo Wan (West) Archaeological Site	SCALE N.T.S. Project No. MA12014	DATE Sep-13 Appendix M3

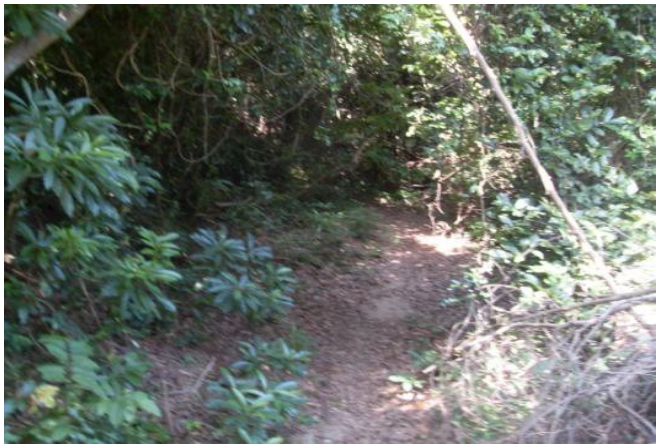


Photo 19

Photo 20

Photo 21

Photo 22

Photo 23

Photo 24

CINOTECH 漢蘇 consultants limited	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Photographic Records for Sha Lo Wan (West) Archaeological Site	SCALE N.T.S. Project No. MA12014	DATE Sep-13 Appendix M4

Photo 25

Photo 26

Photo 27

Photo 28

Photo 29

Photo 30

CINOTECH 漢蘇 consultants limited	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Photographic Records for Sha Lo Wan (West) Archaeological Site	SCALE N.T.S. Project No. MA12014	DATE Sep-13 Appendix M5

Photo 31

Photo 32

Photo 33

Photo 34

Photo 35

Photo 36

CINOTECH 漢蘇 consultants limited	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Photographic Records for Sha Lo Wan (West) Archaeological Site	SCALE N.T.S. Project No. MA12014	DATE Sep-13 Appendix M6

Photo 37

Photo 38

Photo 39

Photo 40

Photo 41

CINOTECH 漢臻 consultants limited	Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Photographic Records for Sha Lo Wan (West) Archaeological Site	SCALE N.T.S.	DATE Sep-13
		Project No. MA12014	Appendix M7

APPENDIX N
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
Air Quality							
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	^
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	* ^ ^ ^ ^
S5.5.6.2	A2	• When there are open excavation and reinstatement works, hoarding	Good construction site	Contractor	All construction	Construction	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;	practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.		sites	stage	^ ^ ^ N/A ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
S5.5.6.2	A2	• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	All construction sites	Construction stage	N/A ^ ^
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	Control construction dust	Contractor	All construction sites	Construction stage	^
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period.	Contractor	Selected representative dust monitoring station	Construction stage	^
S5.5.7.1	A6	The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant: • Loading, unloading, handling, transfer or storage of any dusty	Monitor the 24 hr and 1hr TSP levels at the representative dust	Contractor	Selected representative dust	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		materials should be carried out in totally enclosed system; • All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; • Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system; • The materials which may generate airborne dusty emissions should be wetted by water spray system; • All receiving hoppers should be enclosed on three sides up to 3m above unloading point; • All conveyor transfer points should be totally enclosed; • All access and route roads within the premises should be paved and wetted; and • Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body.	monitoring stations to ensure compliance with relevant criteria throughout the construction period.		monitoring station		N/A N/A N/A N/A N/A N/A N/A
S5.5.2.7	A7	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points.	Control construction dust	Contractor	All construction sites	Construction stage	N/A N/A N/A N/A
Construction Noise (Air borne)							
S6.4.10	N1	1) Use of good site practices to limit noise emissions by considering the	Control construction airborne	Contractor	All construction	Construction	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		following: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site officer and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	noise by means of good site practices		sites	stage	* ^ ^ ^ ^ ^
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	^
S6.4.12	N3	3) Install movable noise barriers (typically density @14kg/m^2), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw.	Screen the noisy plant items to be used at all construction sites	Contractor	For plant items listed in Appendix 6D of the EIA report at all construction sites	Construction stage	^
S6.4.13	N4	4) Select “Quiet plants” which comply with the BS 5228 Part 1 or TM	Reduce the noise levels of	Contractor	For plant items	Construction	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		standards.	plant items		listed in Appendix 6D of the EIA report at all construction sites	stage	
S6.4.14	N5	5) Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	^
	N6	6) Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	^
Waste Management (Construction Waste)							
S8.3.8	WM1	*Construction and Demolition Material* The following mitigation measures should be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation					^ ^
S8.3.9 - S8.3.11	WM2	*C&D Waste* • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		areas of the sites should be considered for such segregation and storage.					
S8.2.12-S8.3.15	WM3	<u>*Chemical Waste*</u> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.					
S8.3.16	WM4	*Sewage* • Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	^
S8.3.17	WM5	*General Refuse* • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans,	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	* ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		plastic bottles etc., should be provided. • Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.					^
Water Quality (Construction Phase)							
S9.11.1 – S9.11.1.2	W1	• Mitigation during the marine works to reduce impacts to within acceptable levels have been recommended and will comprise a series of measures that restrict the method and sequencing of dredging/backfilling, as well as protection measures. Details of the measures are provided below and summarised in the Environmental Mitigation Implementation Schedule in EM&A Manual. • Export for dredged spoils from NWWCZ avoiding exerting high demand on the disposal facilities in the NWWCZ and, hence, minimise potential cumulative impacts; • For the marine viaducts of HKLR, the bored piling will be undertaken within a metal casing; • where public fill is proposed for filling below -2.5mPD, the fine content in the public fill will be controlled to 25%; • single layer silt curtains will be applied around all works; • during the first two months of dredging work for HKLR, the silt-removal efficiency of the silt-curtains shall be verified by examining the results of water quality monitoring points. The water quality monitoring points to be selected for the above shall be those close to the locations of the initial period of dredging work. Details in this regard shall be determined by the ENPO to be established,	To control construction water quality	Contractor	During seawall dredging and filling	Construction stage	^ ^ ^ N/A ^ N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		taking account of the Contractor's proposed actual locations of his initial period of dredging work. • silt curtain shall be fully maintained throughout the works. In addition, dredging operations should be undertaken in such a manner as to minimise resuspension of sediments. Standard good dredging practice measures should, therefore, be implemented including the following requirements which should be written into the dredging contract. • trailer suction hopper dredgers shall not allow mud to overflow; • use of Lean Material Overboard (LMOB) systems shall be prohibited; • mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted; • barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material; • any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; • loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation; • excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved; • adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;					^ N/A ^ ^ ^ ^ ^ * ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and • the works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.					^ ^
S9.11.1.3	W2	*Land Works* General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include: • wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; • sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided; • storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; • silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including	To control construction water quality	Contractor	During seawall dredging and filling	Construction stage	^ N/A * *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		specifically at the onset of and after each rainstorm; • temporary access roads should be surfaced with crushed stone or gravel; • rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; • open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; • manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; • discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; • all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit; • wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain; • the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel;					^ ^ ^ ^ ^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects; • vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal; • the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately; • waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; • all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and • surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.					^ ^ ^ ^ ^ ^
S9.14	W3	Implement a water quality monitoring programme	Control water quality	Contractor	At identified monitoring location	During construction period	^
Ecology (Construction Phase)							
S10.7	E1	• Good site practices to avoid runoff entering woodland habitats in Scenic Hill	Avoid potential disturbance on habitat of Romer's Tree	Designer; Contractor	Scenic Hill	During construction	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• Reinstate works areas in Scenic Hill • Avoid stream modification in Scenic Hill	Frog in Scenic Hill				N/A ^
S10.7	E2	• Use closed grab in dredging works. • Install silt curtain during the construction. • Limit dredging and works fronts. • Good site practices • Strict enforcement of no marine dumping. • Site runoff control • Spill response plan	Minimise marine water quality impacts	Contractor	Seawall,	During construction	^ ^ ^ ^ ^ ^ ^
S10.7	E3	• Reprovision of replacement Artificial Reefs (of the same volume as the existing ARs inside Marine Exclusion Zone)	Mitigate water quality impacts on the existing ARs	Project proponent	To be determined	Construction phase or operation phase	N/A
S10.7	E4	Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater	Prevent Sedimentation from Land-based works areas	Contractor	Land-based works areas	During construction	^
S10.7	E5	Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time	Prevent disturbance to terrestrial fauna and habitats	Contractor	Land-based works areas	During construction	^
S10.7	E6	• Dolphin Exclusion Zone; • Dolphin watching plan	Minimize temporary marine habitat loss impact to dolphins	Contractor	Marine works	During marine works	^ ^
S10.7	E7	• Decouple compressors and other equipment on working vessels • Avoidance of percussive piling • Marine underwater noise monitoring	Minimise marine noise impacts on dolphins	Contractor	Marine works	During marine works	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• Temporal suspension of drilling bored pile casing in rock during peak dolphin calving season in May and June					N/A
S10.7	E8	• Control vessel speed • Skipper training. • Predefined and regular routes for working vessels; avoid Brothers Islands.	Minimise marine traffic disturbance on dolphins	Contractor	Marine traffic	During marine works	^ ^ ^
S10.10	E9	• Dolphin vessel monitoring	Minimise marine traffic disturbance on dolphins	Contractor	North Lantau and West Lantau	Prior to construction, during construction, and 1 year after operation	^
Fisheries							
S11.7	F1	• Reprovision of replacement Artificial Reefs(of the same volume as the existing ARs inside Marine Exclusion Zone)	Mitigate water quality impacts on the existing ARs	Project proponent	To be determined	Construction phase or operation phase	N/A
S11.7	F2	• Reduce re-suspension of sediments • Limit dredging and works fronts. • Good site practices • Strict enforcement of no marine dumping • Spill response plan	Minimise marine water quality impacts	Contractor	Seawall,	During construction	^ ^ ^ ^ ^
Landscape & Visual (Construction Phase)							
S14.3.3.3	LV2	Mitigate both Landscape and Visual Impacts • G1. Grass-hydroseed bare soil surface and stock pile areas.	Minimise visual & landscape impact	Contractor	HKLR	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		• G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge or footbridge to screen bridge and traffic. • G3. For HKLR, providing aesthetic design on the viaduct, tunnel portals, at-grade roads (e.g. subtle colour tone and slim form for viaduct, featured form of tunnel portals, roadside planting along at-grade roads and landscape berm on) to beautify the HKLR alignment. • G5. Vegetation reinstatement and upgrading to disturbed areas. • G6. Maximize new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed. • G7. Provide planting area around peripheral of and within HKLR for tree screening buffer effect. • G8. Plant salt tolerant native tree and shrubs etc along the planter strip at affected seawall. • G9. Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline (see Figure 14.4.2 for example).					N/A N/A N/A N/A N/A N/A N/A
S14.3.3.3	LV3	<u>Mitigate Visual Impacts</u> • V1.Minimize time for construction activities during construction period. • V2.Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKLR construction.					^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
EM&A							
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	Project Proponent	All construction sites	Construction stage	^
S15.5 - S15.6	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	^ ^ ^

Remarks: ^ Compliance of mitigation measure

* Recommendation was made during site audit but improved/rectified by the contractor

N/A Not Applicable at this stage as no such site activities were conducted in the reporting month (e.g. concrete batching plan, barging point, seawall dredging and filling, bored piling, landscaping works etc)

APPENDIX O
WASTE GENERATION IN THE REPORTING MONTH

Appendix: C6 Monthly Summary Waste Flow Table

Name of Department: HyD

Contract No.: HY/2011/09

Monthly Summary Waste Flow Table for 2013 (Year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated[11]	Hard Rock and Large Broken Concrete[6]	Reused in the Contract[8,9]	Reused in other Projects[5,8,9]	Disposed as Public Fill[7]	Imported Fill[6,7,8,9]	Metals	Paper/ cardboard packaging	Plastics[3]	Chemical Waste	Others, e.g. general refuse[8,9]
	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m^3)
Jan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.150
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.072
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.091
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.410	0.000	0.000	0.098
May	1.436	0.000	0.000	0.000	1.436	0.000	0.000	0.465	0.000	0.000	0.117
Jun	5.335	0.000	0.000	0.000	5.335	0.000	0.000	0.426	0.000	0.000	0.111
Sub-Total	6.771	0.000	0.000	0.000	6.771	0.000	0.000	1.676	0.000	0.000	0.637
Jul	12.438	0.000	0.280	0.000	5.896	6.262	0.000	0.447	0.000	0.000	0.117
Aug	12.107	0.000	0.000	0.000	4.646	7.461	0.000	0.552	0.000	1.784	0.124
Sep	8.412	0.000	0.070	0.000	7.276	1.066	0.000	0.666	0.000	0.000	0.137
Oct											
Nov											
Dec											
Total	39.728	0.000	0.350	0.000	24.589	14.789	0.000	3.341	0.000	1.784	1.014

Forecast of Total Quantities of C&D Materials to be Generated from the Contract [10]										
Total Quantity Generated[11]	Hard Rock and Large Broken Concrete[6]	Reused in the Contract[8,9]	Reused in other Projects[5,8,9]	Disposed as Public Fill[7]	Imported Fill[6,7,8,9]	Metals	Paper/ cardboard packaging	Plastics[3]	Chemical Waste	Others, e.g. general refuse[8,9]
(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m^3)
24.000	121.054	0.000	121.054	2.000	22.000	0.000	9.681	0.000	64.224	2.940

Notes:

(1) The performance targets are given in ER Appendix 8J Clause 14 and the EM&A Manual.

(2) The waste flow table shall also include C&D materials to be imported for use at the Site.

(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

(4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m^3. (ER Part 8 Clause 8.8.5 (d) (ii) refers).

(5) The materials reused in other Project shall not be treated as waste under the Waste Disposal Ordinance (CAP354).

(6) According to the EIA Appendix 8B, the density of rock (bulked) is 2.0 tonnes/m^3.

(7) According to the EIA Appendix 8B, the density of soil (bulked) is 1.8 tonnes/m^3.

(8) Assuming the loading quantities of a 30-tonne truck is 8.0m^3.

(9) Assuming the loading quantities of a 24-tonne truck is 6.5m^3.

(10) The forcast of C&D materials to be generated from the Contract is sourced from the works program in September 2013.

(11) The volume of Total Quantity Generated means the volume of Hard Rock and Large Broken Concrete+Disposed as Public Fill+Imported Fill-Reused in the Contract-Reused in other Projects

APPENDIX P
COMPLAINT LOG

Appendix P - Complaint Log

Log Ref.	Location	Received Date	Details of Complaint	Investigation/ Mitigation Action	Status
Com-2013-04-001	Near Tung Chung New Development Pier	8 April 2013	EPD received the complaint on 8 April 2013. The complainant complained about oil was dumped from various vessels operating for Hong Kong-Zhuhai-Macao Bridge Hong Kong (HZMB HK) Projects near Tung Chung New Development Pier over the past few months.	1) The vessels photos in the complainant's photo are not the working vessels under Contract No. HK/2011/09. 2) No oil dumped from Contract No. HK/2011/09's working vessels was observed according to ET's site inspection conducted on 9 April 2013 at near Tung Chung New Development Ferry Pier. 3) Joint site inspection (DCVJV and ARUP) was conducted on 10 April 2013 and confirmed that Contract No. HY/2011/09's vessels are not involved the complaint case. 4) DCVJV will keep remind their boat crews not discharging contaminated effluent directly into the sea.	Closed
Com-2013-05-001	WA6	2 May 2013	ARUP received the complaint on 2 May 2013. The complainant alleged the noise nuisance was generated from the Works Area	The site diary report was reviewed and confirmed that no works were carried out at WA6 on 1 May 2013. In addition, no noise was heard from	Closed

			WA6 at around 13:00 on 1 May 2013 (Wednesday).	WA6 according to the security guard who on duty at WA6 on 1 May 2013. Based on the information provided, the complaint regarding the construction noise at WA6 is not considered justifiable.	
Com-2013-05-002	WA6	18 May 2013	ARUP received the complaint on 18 May 2013. The complainant advised that the noise nuisance due to loading of metal parts at barge near the seawall of Works Area WA6 early morning (around8:45a.m) on 18 May 2013 (Saturday).	Based on the record of site activities at WA6 on 18 May 2013, 4 metal plates and 2 oxygen-acetylene set were lifted onto a derrick boat "Chiu Kee" by a crane near seawall at WA6 in the morning on that day. Such operation was commenced around 8:40a.m and completed in 10 minutes during the normal construction working hour (0700 – 1900 Monday to Saturday). However, the duration of aforesaid activities is very short and infrequent. Nevertheless, the Contractor was reminded to strengthen their site supervision and provide training for the workers regularly to increase awareness of their environmental responsibilities to minimize the noise impact to the nearby residents and the specific mitigation measures for the complaint including but not limited to:- • To place wooden planks or rubber	Closed

				mats on ground for loading and unloading heavy or metal objects; and • To deploy professional personnel to supervise the works.	
Com-2013-05-003	Near Tung Chung New Development Pier	18 May 2013	EPD received the public complaint on 18 May 2013. This complaint was a follow-up of a previous complaint received by EPD on 8 April 2013 (Com-2013-04-001). The complainant complained again about the oil was dumped from various vessels operating for Hong Kong-Zhuhai-Macao Bridge Hong Kong (HZMB HK) Projects near Tung Chung New Development Pier over the past months.	After receiving the complaint, additional site inspection was conducted at near Tung Chung New Development Pier on 30 May 2013 to investigate whether oil dumped was due to Contract No. HY/2011/09's vessels. During the site inspection, three working vessels under Contract No.HY/2011/09 was anchored off near Tung Chung New Development Pier. No oil dumped from Contract No. HY/2011/09's vessels were observed and the water around the vessels was clear. The following mitigation measures have been implemented by DCVJV: • DCVJV has sent the letter to the shipping agent to remind them to ensure the vessels under Contract No. HY/2011/09 are in good condition and any oil dumped to sea should be avoided to prevent water pollution. • Provide training to the vessel skippers for prevention of pollution	Closed

				from ships. • DCVJV requested vessel skippers to provide engine oil disposal records The vessel skippers assured to us that all waste lubricants were sent to waste collectors regularly and no oil discharge into seawater.	
Com-2013-07-001	Southeast Quay of Chek Lap Kok near the junction of Chek Lap Kok South Road and Scenic Road	17 July 2013	The complaint was received by EPD on 17th July 2013. According to the EPD's letter, the complainant was concerned for the noise nuisance generated from the operation of concrete lorry mixers during evening and night-time period at Southeast Quay of Chek Lap Kok.	In response to the complaint, ET conducted two times site inspections at Southeast Quay at Chek Lap Kok between 18:45 and 20:30 hours on 23 July 2013 and 20:30 to 22:30 hours on 30 July 2013. During the inspections, the Ro-Ro barge was observed anchored off Southeast Quay at Chek Lap Kok but no concrete lorry mixer was observed throughout the inspection. On 23 July 2013, at about 19:35, one tug boat was observed travelling to Southeast Quay, Chek Lap Kok and left at about 19:40. On 30 July 2013, no tug boat and concrete lorry mixers were observed during the inspection.	Closed

				According to the Contractor, there was no concreting works for the pier sites on 23 July 2013 and therefore no loading and unloading operation at Southeast Quay at Chek Lap Kok. Concreting works were performed at Pier 0 on 30 July 2013. As the Contractor anticipated the arrival time of tug boat and flap-top barge at Southeast Quay will exceed 23:00 hours after the concreting works, they decided to arrange the tug boat and flap-top barge with concrete lorry mixers anchored off around Pier 66 after 23:00 hours. So, no loading and unloading operation at Southeast Quay at Chek Lap Kok was observed. Further night time site inspection was conducted on 22 August 2013 during the loading and unloading operation at Southeast Quay of Chek Lap Kok, the construction works conducted under Contract No. HY/2011/09 complied with the conditions in the CNP No. GW-RS0895-13.	